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ABSTRACT

The two papers in this report explore the dimensions of the idea of adulthood as a period of continuing change and learning, and their implications for adult education. In the first paper, Harry Lasker and James Moore review the major works on adult psychological, intellectual, and moral development. They describe the major stage theories posed by researchers and their implications for educators. (For example, some individuals may not be able or willing to respond to directive instruction, while those at a different level of development would welcome this approach and not respond well to others.) In the second paper, Edwin Simpson looks at three components of adult learning. These components are (1) the body of theory on adult learning, from which a number of principles of learning and teaching can be derived: (2) the psychological and social circumstances of adult learners: and (3) the conditions under which learning takes place (approaches to learning). He views the learning experience as a combination of these three components and suggests that the choice of combinations may vary according to the purpose and circumstances of the learning experience. The unifying theme of these two papers is the importance of recognizing the diversity of adult learners and learning, and putting these differences into integrated frameworks in order to have a foundation for making specific changes and adaptations to help the learner be more effective. (KC)

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ADULT DEVELOPMENT AND APPROACHES TO LEARNING

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FOREWORD

Meg Greenfield, noted columnist for the Washington Post and Newsweek, recently wrote that "adult education is a growth industry." It is growing for two reasons. The first is the demographic emergence of the adult population: those over 21 represented 59 percent of the population in 1967, 67 percent in 1980, and will be 70 percent in 1990. The second has been a change in our understanding of what constitutes adulthood and adult learning.

The 1970's might be characterized as the decade that saw the death of the assumption of adult stasis and the widespread acceptance of the idea proposed by Erikson, Levinson, Greene, and others that adulthood is dynamic: 50 or more years marked by stages of personal development and periods of transition. The idea of adulthood as a period of continuing change and learning is replacing the longstanding notion that adulthood is a stable period of life in which a person applies the learning acquired in adolescence and childhood.

The two papers in this report explore the dimensions of this second reason and their implications for adult learning. The approach goes beyond such formulations as "the adult as learner is different from the child as learner" and explanations of this based on the voluntary nature of adult learning and education, the complexity of adult life, and the many roles adults play while learning.

Harry Lasker and James Moore review the major works on adult psychological, intellectual, and moral development. They divide the various perspectives into two major groups, both of which assume that there are qualitative changes in the ways adults understand and act and that certain aspects of these changes occur in progressive sequences. One group examines the phases through which almost all adults pass and which occur at relatively fixed chronological periods (ages). The other views adults as developing into and through various identifiable stages that are similar from person to person, although the rate of development and the highest levels attained vary considerably.

As an adult passes from one phase to another, according to one phase theorist, Daniel Levinson, the person makes deliberate choices that change the ways in which (s)he organizes and acts in her/his world, integrating one's evolving personal philosophy and self-understanding with changes in one's circumstances, family, career, and leisure activities. Understanding these differences may enable educators to understand the adult learner's motivations for choosing or not choosing a program, the personal goals and objectives brought to the experience, and some of the difficulties that individual learners may have in relating to the experience. This may be particularly true of those with fewer years of formal education, if additional research were done on their experiences in changing and adapting to life's phases. Education may have a significant role to play in precipitating or completing the transition from one phase to another.

The stage theorists emphasize that adults vary in their psychological capabilities and that the changing conditions of life are experienced and responded to differently, depending on the individual's level of maturity and development. Lasker and Moore review major stage theories pertaining to personality, intellectual, and cognitive development and moral reasoning. They suggest that additional work is needed in two critical areas: the relationship among these various domains, and the relationship between these and other experiences such as formal education and family background.

The stage perspectives have a number of implications for educators. It may be, for example, that some individuals may not be able or willing to respond to directive instruction, while those at a different level of development would welcome this and not respond well to others. Also, if these perspectives have merit, the educator can choose whether to match the educational experience to the learner's stage of development or to use the educational experience to assist the learner to move on to the next level. The authors point out that these are not easy issues to resolve, nor is the process of how these insights might be adapted to educational situations entirely clear.

In the second paper, Edwin Simpson looks at three components of adult learning. The first is the body of theory on adult learning, which he categorizes in terms of behaviorism and neobehaviorism, cognitivism, psychoanalytic, self, and cybernetic theory. From each of these, a number of principles of learning and teaching can be derived.

The second component emerges from a variety of studies that have examined the psychological and social circumstances of adult learners, including the variety of learning styles they have, their motivations in entering a learning experience, and the attitudes toward learning that they have formed by their past experiences with formal education.

The third component is the conditions under which the learning takes place. Simpson notes the differences between approaches such as rote, inquiry, reflection, and value learning. Most teachers or learning facilitators create one or more of these conditions in the learning experience. The learner perceives the condition as similar or different from what is intended.

The learning experience, in the classroom or self-directed, is viewed as a combination of these three components. Simpson suggests that the choice of combinations may vary according to the purpose and circumstances of the learning experience. For example, if the purpose is to learn psychomotor skills for a repetitive task, a condition of rote learning based on the principles of behavioristic theory and a concrete learning style might be effective. Alternatively, if the purpose is to seek unknown solutions, a condition of symbolic learning based on cognitive theory and abstract reasoning style might be more appropriate.

The unifying theme of these two papers is the importance of recognizing the diversity of adult learners and learning. Adult educators have to consider the diversity of the various groups they might address or the diversity that could exist within a single group. The ability to adapt one's instructional style and the learning environment might be one of the keys to effectively teaching adults. It appears that no one set of rules and no single learning process will succeed in all circumstances for all adult learners.

While these are lessons that may be well known to adult educators, the perspectives reviewed in these papers can enable them to put these differences into integrated frameworks and have a foundation for making specific changes and adaptations needed to help the learner be more effective.

This report is one of several being published under the auspices of NIE's Adult Learning Team, Education in the Home, Community, and Work Unit, Program on Teaching and Learning. A second is *The Adult Illiterate Speaks Out: Personal Perspectives on Learning to Read and Write* by Anne Hurdle and Sandra Robinson. The third is *APL Revisited: Its Uses and Adaptations in States* with contributions by Joan Keller Fischer on "Competencies for Adult Basic Education and Diploma Programs: A Summary of Studies and Cross-Reference of Results," and by Walter Haney and Lloyd David on "The APL Study: Science, Dissemination, and the Nature of Adult Education."

Further information about the Institute's research program in adult learning can be obtained from Jerome Lord of the Adult Learning Team, National Institute of Education, 1200 19th St. N.W., Washington, D.C. 20208, (202) 254-5706.

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CURRENT STUDIES OF ADULT DEVELOPMENT: IMPLICATIONS FOR EDUCATION

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CURRENT STUDIES OF ADULT DEVELOPMENT: IMPLICATIONS FOR EDUCATION

In recent years, many insights into the character of adult development have emerged. These insights are relevant to the practice of adult education, the formulation of educational policy, and the conduct of educational research. Because much of this work is new and being done by a diverse collection of researchers—primarily situated in a few major university centers around the country—only a small portion of the findings are well-known. In this paper, we introduce this literature, focusing on insights from current studies that have important implications for programs and research in adult education.

1. The Study of Adult Development

The field of adult development is founded on the observation that adult life evolves. Over the course of a lifetime, each of us must face the progression of chronological age. Our work takes shape, matures, and then in later years gives way to the creations of the upcoming generation. Parents die; children grow older; days of youthful energy give way to rationed efforts and carefully chosen commitments. All of these changes reflect our experiences, bring us to new understandings, direct our involvements, and deal with emerging consequences. Those of us who are fortunate manage to grow in capability, wisdom, and care.

Within the complex reality of adulthood, researchers are beginning to discover and understand shared patterns of adult development in our society. These findings have enormous implications for adult education. They enable us to begin to comprehend the contribution of any particular educational program to the lives of those served.

In surveying current research on adult development, we can distinguish between two general approaches, which we call the "phasic" and "stage" approaches. Each of these orientations is characterized by particular assumptions about the nature of development. Both approaches assume that there are qualitative changes in the ways adults understand and act, and that certain aspects of these changes occur in progressive sequences. They differ in numerous ways, most obviously as to whether the developmental changes involved are age-related.

In the phasic approach, the aspects of development that are of interest are those that occur during relatively fixed periods of adult life. We have found it helpful to use the term "phase" for such periods, and the term "phasic" for theories that see development in terms of

age-related periods. By contrast, the stage approaches focus on developments in adulthood that are not well correlated with age. For these changes, the overall sequence of development is similar from person tc person, but the rate and the highest levels attained varv considerably from person to person.

The distinction between the phasic and stage approaches can be envisioned by comparing the biological metaphors that have guided researchers in each approach. Phases of adult life are thought of as seasons, with an adult life span compared to a single cycle of seasons. Like popular images of the springtime of youth, the harvest of mid-life, and the winter of advanced age, phases of adult life are chronological periods that everyone experiences. And like the responses of plants and animals to the changing of seasons, adult development involves adapting to changing conditions.

Contrastingly, stages of adult life identify levels of maturity that are relatively independent of the seasonal conditions in which they are found. Stage theories come from the insight that the same conditions are experienced in different ways, depending upon the psychological development of the persons involved. Thus, stage theories reveal that though the seasons of adult life present similar conditions for each person, response to these conditions will in part be determined by each person's level of development in various psychological domains.

Stages of adult development correspond metaphorically to the stages of biological development of single organisms. A plant grows from a seed to seedling to maturity. Similarly, the patterns of development highlighted by stage theories are an ordered sequence of complex forms and capacities. Further, the structure and sequence of stage development appear to be determined by the intrinsic organization of that which is developing—rather than by the environmental conditions in which growth occurs. Like a growing plant, the rate of development and the mature stature achieved depend on external conditions; yet, the essential structure that develops is intrinsically organized and emerges according to its own rules.

Both the phasic and the stage approaches to adult development have generated powerful insights into the nature of adult life. And though these two approaches have led to different views of adulthood, we believe that the approaches are complementary. Indeed, one important frontier for future research is the integration of phasic and stage approaches. In this paper, we further outline the views of adulthood that have emerged from each approach. We also examine their implications for program development and research in adult education, and we discuss how these theories and their implications might be further explored.

2. Age-Related Phases in Adult Development

To speak of a general, human life cycle is to propose that the journey from birth to old age follows an underlying, universal pattern on which there are endless cultural and individual variations. Many influences along the way shape the nature of the journey....But as long as the journey continues, it follows the basic sequence.

[Further,] there is the idea of seasons: a series of periods or stages within the life cycle. The process is not a simple, continuous, unchanging flow. There are qualitatively different seasons, each having its own distinctive character. Every season is

different from those that precede and follow it, though it also has much in common with them. The imagery of seasons takes many forms. There are seasons of the year: spring is a time of blossoming, winter a time of death but also of rebirth and the start of the new cycle. There are seasons, too, within a single day—daybreak, noon, dusk, the quiet dark of night—each having its diurnal, atmospheric and psychological character. There are seasons in a love relationship, in war, politics, artistic creation and illness.

...To speak of seasons is to say that the life course has a certain shape, that it evolves through a series of definable forms. (Levinson, 1978, pp. 6-7)

As Levinson explains, the phasic approach to adult development is based on a set of metaphors for development: life as a journey; and life's journey as having seasons of distinct quality. These metaphors express how adult life changes in profound and qualitative ways as one ages. The metaphors suggest that the changes are similar for each person who experiences them, and that these progressive changes can be usefully distinguished into chronological phases.

In adult development research, the identification of phasic phenomena has a history that goes back more than 50 years. Jung (1933) began studies of phasic aspects of adult development early in the century. And as early as 1935, another group in the field of psychology was meeting regularly in Chicago and New York--concerned with understanding the progression of psychological tasks in adulthood (Havighurst, 1973). One outgrowth of these meetings, which continued until 1950, was Erikson's well-known theory of the progression of psychosocial tasks and periods in adult life (Erikson, 1950).

Though interest in phasic phenomena goes back many years, the early studies mostly were based on clinical impressions alone. Only recently have careful empirical studies enabled a more precise understanding of age-related change in adulthood. Of the current and more empirical research, two theses seem most promising. One focuses on the evolution of the ability to create for oneself a satisfactory and consciously intended way of life. This approach is best represented by the work of Daniel Levinson and his associates (1978), which is organized around the concept of a developing life structure. The second focuses on the ability to free oneself from dysfunctional and largely unconscious childhood assumptions about the world one lives in. Several psychotherapeutic traditions have long been concerned with fostering this sort of change. The recent studies of Roger Gould (1972, 1978) have revealed phasic patterns in this domain of development. We consider each of these phasic theories in turn.

Phases in the Intentional Construction of Life Structures

Perhaps the most immediately understandable and useful theory of adult development deals directly with the personal evolution of conscious choice and of the ability to create a satisfactory and self-directed life. To some extent, both Carl Jung and Erik Erikson concerned themselves with these dimensions of adult development. Jung's (1933) concept of individuation involves a person's ability over time to manifest key parts—parts that demand expression—of his or her inner self. Erikson's (1950) concept of emergent personal qualities—ego identity, loving intimacy, caring creativity, and wisdom—also relates to dimensions of the development of choice, intention, and understanding in adult life. Jung and Erikson's conceptualizations have stirred the imaginations of both developmental researchers and members of

the wider public, and thus have been influential in suggesting directions for subsequent studies and in preparing the ground in which subsequent theories have been received. However, both theories are highly impressionistic and have not been well explored in empirical studies. The challenge to current developmental theorists has been to maintain a measure of the boldness and comprehensiveness that characterize Jung and Erikson's work, while using empirical methods so as to ground the theory in the phenomena of actual adult lives.

We consider the work of Daniel Levinson and his associates to be the most advanced done so far utilizing the phasic approach. Levinson's group has pioneered in integrating sociological and psychological inquiry. Further, their basic analytical tools—including the concepts of eras, life structure, and developmental tasks and periods—are particularly helpful in furthering a process-oriented understanding of adult development.

To collect data, the Levinson group recruited 40 men, aged 35 to 45, from four occupations: factory workers, novelists, business executives, and academic biologists. The men varied widely in family backgrounds, life styles, and socioeconomic levels. Diversity was thus achieved; however, the sample is still a limited one, and caution must be observed in generalizing from this study. In addition, the work has come under some attack for not including women; to this, Levinson has said:

> One of the most difficult decisions was that limiting the study to men. Ultimately it is essential to study the adult development of both genders if we are to understand either....
>
> Despite my strong desire to include women, I decided finally against it. A study of twenty men and twenty women would do justice to neither group. The differences between women and men are sufficiently great so that they would have to become a major focus of analysis. (Levinson, 1978, pp. 8-9)

In fact, studies are under way which extend Levinson's general approach to women and to adults of other ages. The first of these is Stewart's (1976) study of a small sample of women ages 17 to 35.

To return to Levinson's work itself, he and his associates used extensive subject interviews as the primary data collection method. Each subject was interviewed several times during a period of 2 to 3 months, and in all possible cases, each participant was interviewed again in a followup session 2 years later. The interviews were conducted by a psychologist or sociologist assigned to each participant. The sessions were conducted in an open, probing manner, focusing on choices and their consequences. The interview data were then used by each researcher to construct a detailed biography of each subject.

The biographies were compared and discussed jointly by the members of the research group, in an attempt to identify phasic patterns of development. Pattern concepts and awareness emerged over the course of many examinations and discussions of the data. This method of inquiry, common in anthropological and sociological research, is often referred to as discovering "grounded theory"—that is, theory "grounded" in descriptive data (Glaser and Strauss, 1967; Schatzman and Strauss, 1973).

Central to Levinson's work is a set of empirically defined concepts. Life structure refers to the way a person organizes his/her ways of acting in and understanding the world. It encompasses both a person's outer organization of tasks, activities, and relationships with other persons, and the inner, less visible organization of psychological life. The use of life structure as a guiding concept steered Levinson and his associates toward the intentional structuring a person creates through the choices (s)he makes. This structuring is internal, for example, in terms of one's own consciously evolving philosophy and self-understanding. The structure is partly external—for example, in the organization of family and friends, occupational and leisure activities, and other pursuits such as ethnic, religious, and political activities.

Levinson and his associates also were guided by the metaphor of seasons and looked for phasic, age-related changes in their subjects' lives. They found convincing evidence for such change, initially in the form of four major eras in adult life. These age-related eras and the transition periods between them are represented in table 1. Eras, as Levinson and his associates understand them, are the setting for important life choices and life structure construction and maintenance. An era is made up of many interrelated factors, including:

- Biological aspects of aging. For example, the amount of physical energy available to the person changes over the course of a lifetime. This sets limits on the nature of the life structure that can be maintained at any given time.
- Age-related changes in social relationships. For example, aging parents cease to be care-providers and become persons in need of care. Children mature into adulthood and attain relative independence. Further, as adults move into mid-life, they become members of the dominant generation in the current history of their culture or subculture. The realization of this position sometimes brings with it a deep sense of responsibility for the well-being of society.
- Age-related changes in occupational status. Youth is generally a time to test occupational options and to enter a domain of work as a novice. As one matures chronologically, one must deal with the consequences of earlier occupational choices, including one's emerging achievements and the relation of these to one's expectations. Changes in occupation, even drastic changes, can be made at mid-life and even later; but the nature and costs of the later changes differ from those made in the early novice phases.

Within each era, Levinson and his associates discovered certain clusterings of key developmental tasks involved in establishing and maintaining various life structure components. In the era of early adulthood, the lives of the 40 men in the Levinson study were characterized by a variety of options in work and personal relationships. Each had a youthful abundance of physical and emotional energy, and the central developmental tasks for each man became exploring and making sense of possibilities, including possible intimate relationships, careers, philosophies, and life dreams. Eventually each made commitments, then turned his energy to making his emerging life structure a success.

In contrast, the central task of middle adulthood was to make a critical evaluation of the life structure elaborated during early adulthood. On the basis of this examination, each man affirmed those aspects of his life structure that he felt satisfied with and either resigned himself to the unsatisfactory aspects or committed himself to making necessary changes. This critical ex-

TABLE 1

ERAS IN THE MALE LIFE CYCLE

Chronological Age	Era
65 plus	*Late Adulthood.* As yet we have little empirical knowledge of the tasks of late adulthood. Traditional conceptions of the era support Erikson's observation that the attainment of wisdom is central to advanced age. A man becomes less central in the affairs of work and family, but may still exert considerable influence as an informal teacher, elder statesperson, and peacemaker.
60-65	(Late Adult Transition)
45-60	*Middle Adulthood.* In this era, a man finds himself a member of the dominant generation. In the world of work and career, he is regarded as a senior member; and within his extended family, he is increasingly looked to for strength and support. Concurrently, he begins to experience his own physical decline—even if slightly—and to become aware of his mortality. In light of recognition of this, a man is moved to reconsider his earlier choices and his current life structure. In the face of this review, he may choose either to change or to affirm various features of his structure.
40-45	(Mid-life Transition)
22-40	*Early Adulthood.* In this era, a man must learn to choose, to create, and to maintain his own life structure. This requires learning about the range of options regarding elements of the life structure, including options regarding understanding of oneself and others and for developing oneself in work and career. Early adulthood also requires that a man learn about commitment to important life choices. During the middle of the era, he commits himself to a particular range of possibilities and attempts to realize these in his life.
17-22	(Early Adult Transition)
3-17	*Childhood and Adolescence.* The tasks of this era revolve around learning the axioms of living, including social skills and knowledge of various types of adult activity. A man is not yet primarily responsible for the construction of his own life structure, but instead lives within the structures created and maintained by others.
0-3	(Early Childhood Transition)

Source: Adapted from Levinson, 1978.

amination, and the resulting choices and actions, determined the main pattern of the men's developmental tasks in middle adulthood.

In the Levinson study, certain clusters of developmental tasks were found to be characteristic of the transition years going into any era, other sets of tasks appeared important during the relatively stable middle point of an era, and still other tasks were highlighted during the closing years. As Levinson notes:

> A transitional period...terminates the existing life structure and creates the possibility for a new one. The primary tasks of every transitional period are to question and reappraise the existing structure, explore various possibilities for change in self and world, and to move toward commitment to the crucial choices that form the basis for a new life structure in the ensuing stable period. (Levinson, 1978, p. 49)

In contrast to the transition periods:

> The primary task of every stable period is to build a life structure: a man must make certain key choices, form a structure around them, and pursue his goals and values within this structure. To say that a period is stable in this sense is not necessarily to say that it is tranquil and without difficulty. The task of making major life choices and building a structure is often stressful indeed, and may involve many kinds of change. (Levinson, 1978, p. 49)

The stable periods are characterized by a relatively fixed life and by a commitment to a particular life structure. Change and development then happen within rather than to the existing context. For the subjects in the Levinson study, transitions between eras typically required 4 to 5 years. Stable periods typically lasted from 6 or 7 to at most 10 years.

The discovery of different transitional and stable phases within life eras led the Levinson group to see adult development in terms of a sequence of developmental periods spanning the life cycle. A developmental period is a subphase within a particular era that is characterized by a unique pattern of developmental tasks. For each age-related developmental period, Levinson and his associates were able to discover highly specific clusters of tasks shared by the men in the study. Levinson's current mapping of the developmental periods is represented in table 2.

Levinson's work is important because it reveals adult lives to be highly patterned in phasic ways. While previous theorists have outlined broad themes and periods in adulthood, Levinson is proposing the emergence of very specific life tasks that can be predicted accurately within a few years of chronological age. Such detailed predictions would have seemed implausible even a few years ago. The very striking nature of these assertions should act as a catalyst for testing his predictions in other cultural and social groups, further widening our understanding of phasic phenomena.

The understanding that an individual's life structure is a response to age-related developmental tasks opens the way for detailed study of the factors involved in the creation of such structures. Some are plainly more satisfactory than others, benefiting both the individual and his/her community. Levinson's research begins to address the issues involved in distinguishing

TABLE 2

DEVELOPMENTAL PERIODS IN EARLY AND MIDDLE ADULTHOOD

Chronological Age	Developmental Period	Era
65 plus		Late Adulthood
60-65	Late Adult Transition	
55-60	Culmination of Middle Adulthood	
50-55	Age 50 Transition	Middle Adulthood
45-50	Entering Middle Adulthood	
40-45	Mid-life Transition	
33-40	Settling Down	
28-33	Age 30 Transition	Early Adulthood
22-28	Entering the Adult World	
17-22	Early Adult Transition	
less than 17		Childhood and Adolescence

Source: Adapted from Levinson, 1978.

between more and less satisfactory life structures. His research also begins to identify the factors—both within the individual and in his/her context—that make possible the creation and maintenance of particularly good life structures in each era. A direct benefit of this type of research may be to help design and evaluate educational programs in terms of how they help individuals evolve effective life structures.

Phases in Transcending Childhood Assumptions

Sigmund Freud (1916-17; 1963), Carl Jung (1933), and currently Roger Gould (1978) all emphasize that an important dimension of adult development involves reworking assumptions about one's world that have been brought forward from childhood—assumptions that are most often unconscious, at least in their sources. Freud, however, did not apply his developmental perspective to adulthood, and thus did not suggest a timetable for this reworking. Jung was very interested in adult development; he believed that in psychologically healthy persons, the work of disentangling from childhood issues lasted through ages 40 to 50. Gould's recent empirical research supports Jung's contention and indicates that age 50 is usual for completion of a substantial amount of this work, thus beginning a more autonomous, self-appropriated phase of living.

In Gould's study (1972, 1978), researchers were assigned to serve as observers for therapy groups composed of persons of similar ages, receiving regular group psychotherapy at the outpatient department of UCLA medical center. The researchers found that particular socio-psychological themes arose repeatedly in the groups and that the content of the themes showed age-related patterning. Themes often related to childhood assumptions about reality were continuing to determine the patient's adult experience. These were dysfunctional enough to warrant attention in psychotherapy.

Overall, Gould's findings indicate that all adults carry with them assumptions about their worlds that: (1) were created in childhood in response to childhood realities; (2) no longer accurately reflect current (and adult) reality; (3) are beyond conscious awareness; and (4) influence how adults respond to present situations—with dysfunctional consequences. Further, Gould found phasic patterning in the emergence of problems that can be attributed to the continued reliance on these assumptions. During each of the phases Gould has identified, particular sorts of psychological and social concerns manifest themselves. Analysis of these concerns reveals them to be based in the need to confront particular clusters of childhood beliefs.

Adult development, in Gould's view, involves addressing these emerging concerns and reworking the associated assumptions. A brief summary of Gould's findings conveys a sense of the developmental progression he has identified. In each of the following periods, one must discover and modify a network of tacit assumptions as outlined below.

Ages 16-22:	One's parents (and parent figures) will continue to set the ultimate context for one's life.
Ages 22-28:	The best ways to understand and act are those one learned as a child growing up.
Ages 28-34:	One is psychologically simple and knows oneself well. One must move into the recognition that both oneself and others are psychologically complex, multidimensional, contradictory, and inconsistent. Knowing oneself and others becomes a process of mature discovery, involving a conscious intention to explore and understand.
Ages 35-45:	Tragedy and death do not apply to one's own world. Further, one must come to accept the existence of real evil in others and in parts of oneself. In confronting the reality of tragedy, death, and evil, one may discover a new ability and freedom to cope with them.
Ages 45 plus:	Freedom from childhood assumptions is well achieved or in its *final* stage for those who have made the earlier transformations adequately. Ages 45 and over bring the challenge of coalescing a new way of being that is based in the emerging assumption that "I own myself." The work of this new era involves the construction of a way of life built on the recognition that one has only a finite time left and that one wants increasingly to live this remaining time guided by one's own inner direction.

While Gould's findings have obvious implications for psychotherapeutic work with adults, they also shed light on psychological conflicts that may affect how adults experience educational programs. As we discuss in the next section, sophisticated awareness of these concerns and assumptions can increase the ability of educators to understand their students and themselves. This, in turn, can enable educators to create programs that are better matched to the needs of all concerned.

Implications of the Phasic Approach for Education

The studies of Levinson and Gould are the latest in a series of works that have sought to outline developmental tasks throughout the life cycle. Hall (1922), Buhler (1951), Erikson (1950), and Neugarten (1964) have attempted to define the psychological issues that are central to the maturation of personality in the adult years. All have found a correspondence between life tasks and age periods, and all have attempted to address the problem of how solutions forged in one era affect adaptation in the following periods.

As phasic theory has developed, it has become richer in detail. The current works show how a complex mapping of issues is possible through descriptive longitudinal research. More than previous studies, recent research illustrates how age-linked life cycle concerns are. Furthermore, Levinson's work, by developing a new set of analytic concepts and a theoretical framework to describe the structure of phases, invites more complex discernment of patterning in adult life.

We need to discover the real contributions education can and cannot make to the development of successful life structures. Research may be helpful in uncovering the actual role that education plays in the lives of those involved. We in the education profession sometimes tend to assume that all educational intervention contributes positively to adult lives. This may be true, but it is an assumption that is not well tested. A phasic approach to education could look at both constructive and destructive effects on the life structures of adult learners, providing a new basis for program assessment.

At the very least, phasic theories help demonstrate how aging changes the governing mentality of learners. The existential assumptions, the central preoccupations, and the focal tasks that frame the learner's perspective all seem to shift definably with age. For example, in the "age 30 transition" of early adulthood (approximately ages 28 to 33), individuals are expected to be urgently concerned with choice of a life structure that will end the relative flux of the 20's and form a stable base for the next 10 years. Therefore, educational opportunities are likely to be perceived in light of these concerns. They are chosen in hopes that they will aid in resolving the primary developmental task of establishing stability.

The more extended application of phasic theories may also shed light on programs that do not succeed. Adult vocational, literacy, and other educational programs often have surprisingly high attrition rates. Levinson's description of the difficulty of constructing a new life structure may aid in understanding why some adults, when faced with new opportunity, cling instead to established patterns in their lives. Descriptive research on the lives of disadvantaged groups might suggest how educational opportunity may be tailored to their life structures, rather than predicated on creating new ones.

For each developmental period, further studies could be helpful in providing a fuller picture of common hopes, dreams, expectations, and anxieties of adult learners. This knowledge would help educators speak to the central concerns of their students. In addition, it would help educators to anticipate when the hopes and expectations of their students may be unrealistic in the context of particular educational opportunities and to address these issues consciously and sensitively.

Research might establish a significant link between education and life phases. For example, our experience in teaching and counseling indicates that adults become more attracted to education during the movement from one life period to the next. This transition seems to entail a complex process of letting go of past guiding hopes, while fashioning new ones that give purpose and meaning to life. Erikson (1968), in describing the creation of identity at the end of adolescence, points out the importance of a *moratorium* period in which the individual is free to experiment with new roles and can freely rethink his/her aims and aspirations. For the adolescent, education often supports and enhances this process of renegotiation. The same seems to be true of adults. They often seek educational experiences because of the necessity to stand back from their lives and reconsider their needs and options. Researchers and educators are beginning to appreciate how educational institutions can play a significant supporting role in life transition. We believe that it would be fruitful to address this directly in further phasic research.

Besides providing persons the opportunity to complete a transition already in process, it is possible that education actually initiates the transformation of life structures. A decision to return to school can entail major shifts in the life structure. Considerable pressure for self-redefinition may often be exerted. Furthermore, to the extent that educational achievement leads to new opportunities, this also can create a need for change. For example, the acquisition of new skills through education can open new employment options, which, if taken, may bring profound changes in life circumstances. More detailed research on the factors that lead to reworking a life structure might make education's impact on the identity of adult learners clearer. Pilot work, such as that of Weathersby (1977), suggests that postsecondary education can initiate and accelerate the refashioning of life structures.

Yet there are inherent limits to provoking life structure change. Developmental schemes often seem to entice educators to speed up growth. Yet phasic theories, when carefully considered, suggest that practitioners should be cautious about educational programs aimed at deliberately speeding change in life structure. Levinson's work shows that movement to a new life structure is a complex shift. Its timing is often not random, but is intricately determined by a variety of intersecting age-related factors.

If educational institutions are catalysts for change but cannot control transition, how can they best deal with phasic growth? One answer may be to provide more support for students in transition. If we knew more about the dynamics of phasic change, we might better understand the skills that help movement to next periods. Are some adults better equipped than others for thorough reconstruction of their lives? How can educational institutions support the capacities that may be important? The answers to these questions could give administrators greater insight into counseling and other psychological needs of adult learners. For example, research of this kind might also suggest how courses on the psychology of adult development might ease

transition by helping adults to anticipate change and by providing a framework for understanding normal shifts in self-definition and way of life.

Some means of supporting transition of this kind are already found in educational settings. One mechanism for reconstructing lives is mentoring. The men in Levinson's study often received mentoring, a close apprentice-like relationship with a senior colleague who taught them how to build a successful career life structure and function within it. Researchable questions that might shed more light on the role of mentoring in the creation of effective life structures include: How important are mentors in professional preparation? What sorts of knowledge do mentors transmit? What are the psychological costs, if any, of never having established this kind of bond? Can the process of mentoring be more formalized in the education of adults?

The life structure perspective can also shed light on other supportive relationships between students and teachers, teachers and teachers, and students and students. Universities are becoming centers where adults of all ages and in all developmental periods meet together. From a life structure perspective, this mix may bring problems—because the needs and concerns of the students are sometimes in conflict—as well as opportunities for mutual learning as each age group draws on the strengths of the others.

Levinson's work has implications for the support of teachers as well. In part, his progression of periods incorporates the unfolding of typical career tasks, at least for men. Each period implies a substantial restructuring of one's relation to work. Thus, phasic theories can help the administrator grasp where an individual is in his/her career development. In addition, the life phase models can give insight into the consequences of the balances of ages within staffs. For example, until recently, school faculties were typically composed of teachers at a broad range of ages, constituting a kind of balanced ecology. Young teachers could use older instructors as mentors; at any time, only a small portion of the staff might be involved in the crisis of mid-life transition. Today, for a variety of reasons—especially in primary and secondary school—the life phase balance with staffs is often being upset. The special issues presented by this change might be better understood in the light of phasic research.

In summary, we see two promising focuses for further research on life structure development. First, more exploration is needed on the developmental issues of particular subgroups of persons. While Levinson claims that the eras and periods he has discovered are universal, his categories were derived from the study of only 40 men. Obviously, more studies need to test the validity of this claim and to explore more precisely the developmental issues of many different groups of adults.

Second, we have traced a variety of ways in which educators might potentially initiate and support development. Future studies need to explore the role of education in life structure creation. Not only must the actual effects of education be documented and potential uses explored, but the ethical implication of intervention into adults' lives must be thoroughly considered.

3. Developmental Stages in Adulthood

In the phasic approach to adulthood, development is understood to be a response to age-related changes in the conditions of adult life. Among other factors, age-linked changes in physical functioning, social relationships, and occupational situations necessitate the transformation of life structures and self-understanding. Within the phasic approach, adult development is conceived as creative, transformative responses to the age-related changing conditions of adulthood.

Contrastingly, the stage approach to adult development involves the identification of levels of maturity that are relatively independent of the changing conditions of adult life. The stage approach emphasizes that adults vary in their psychological capabilities. The changing conditions of life are experienced and responded to differently depending on the psychological development of the individual involved. There are a number of stage theories of adult development, each seeking to map aspects of the psychological systems through which adults make sense of their realities and take action to meet their needs.

It is helpful to realize that the stage theorists take much of their direction and inspiration from a biological conception of the development of single organisms: epigenesis. In developmental biology, and especially embryology, the study of epigenesis is the study of developmental patterns that display the following characteristics (Kitchener, 1978):

- Development is internally organized. That is, the emerging processes are guided by an intrinsic system of organization, such as the genetic code. Environmental factors may shape the rate and direction of development somewhat, but the essential form and sequence of development is not altered.
- Development proceeds through identifiable stages, and the stages represent discrete and relatively stable developmental plateaus.
- The direction of development is toward increasing complexity of form and increasing differentiation of parts. For example, a relatively undifferentiated seed develops into a plant with highly differentiated leaves, stems, and roots. Similarly, in psychological life, relatively undifferentiated processes of knowing develop into complex and highly subtle modes of understanding.
- At each identifiable stage of development, the organism displays emergent qualities that were not present at the previous stage. For example, at a certain stage of maturity a tree may bear fruit, displaying a capacity that could not have been observed, even in nascent form, at the sapling stage. In a parallel fashion, higher stages of psychological development enable persons to function in ways that cannot be anticipated at earlier stages.

There have been many epigenetic stage theories in the history of psychology. The use of the biological developmental metaphor in psychology goes back at least to James Mark Baldwin. He proposed a stage theory of personality development (Baldwin, 1897) that appears surprisingly contemporary even today. But the establishment of the biological metaphor, and particularly the epigenetic metaphor, in developmental psychology was largely due to the efforts of Jean Piaget and Heinz Werner, who were both interested primarily in cognitive development in children. Piaget's early research (1932) on the reasoning that underlies moral judgments directly inspired Lawrence Kohlberg's 1969 work on moral development in

children, adolescents, and adults. Kohlberg's sophisticated epigenetic theory, in turn, has inspired and continues to inspire further inquiry along this vein.

There are now many epigenetic stage theories applicable to adults that might have been included in this review. We have tried to select theoretical work that will be most useful to those concerned with adult learning and that is well-supported by empirical studies, whenever possible including research directly concerned with education. Before introducing our selection, we should comment on the nature of epigenetic research.

The discovery of epigenetic sequences is a complex undertaking. First, one must identify differing patterns of thought that constitute distinct responses to particular psychological problems. Next, reliable measures must be developed that can discriminate between these systems of thinking. Then, a variety of studies need to validate the construct. Finally, longitudinal studies must prove that the validated classes of thought unfold in a fixed progression in all populations. Obviously, this is a painstaking process, fraught with differing methodological dilemmas at each step; a procedure that could conceivably take decades to complete. While all the theorists reviewed in this section use the term "stage" to refer to the patterns of thought they have identified, the various theorists differ substantially in the degree to which they have marshalled the requisite evidence to validate their epigenetic sequences. An exact discussion of the extent to which each of these theories has been shown to conform to the epigenetic metaphor is beyond the scope of this paper. It is probably fair to say that none of the sequences to be described has been conclusively shown to have all epigenetic properties.

Furthermore, the problems of validating some sequences appear greater than others. For example, the term "stage" has a broad meaning in some schemes—indeed, as broad as personality development itself. By contrast, other theories use "stage" to refer to much more tightly restricted domains—such as judgment. Generally the broader the use, the more difficult and time consuming it is to fully validate the scheme. These limitations must be borne in mind when considering the variety of stage theories presented here.

So far, the epigenetic metaphor has produced rich gains in insight about adulthood. But the sequences of adult life described here may eventually be shown not to possess all the qualities suggested by the metaphor. However, in the last analysis, the epigenetic metaphor is just that—an heuristic device with which to search for real patterning. In the end, the field is concerned with the actual nature of patterning in adult life, whether or not it conforms to the metaphor used to begin the search.

We will begin our review of stage theories with introductions to the work of both Jane Loevinger and William Perry. Loevinger's (1976) theory, which focuses on the development of personality, describes the ways in which adults understand themselves, their own growth and change, and how they comprehend relationships with others. Loevinger's work has important relevance to education because learning is an intensely personal enterprise in which an individual's system of understanding is central to virtually all that occurs. Perry (1968) provides a theory of intellectual and ethical development of college students. His work is directly concerned with how students make sense of themselves within an educational context, and thus has obvious importance for those in education.

Loevinger's and Perry's theories are holistic in that they distinguish overall patterns in how persons make sense of their worlds. In contrast, the cognitive developmentalists—of whom Piaget and Kohlberg are the most well-known—seek to find the underlying cognitive knowledge necessary for effective functioning in specific domains of life. Of the many cognitive developmental theories that have been thought of, we will review four that are relevant to the present discussion: Kohlberg's work; Robert Selman's 1976 theory of social cognition; Robert Kegan's 1977 theory of personality development; and James Fowler's 1975 stage theory of faith development.

A central concern of educators and researchers faced with the variety of cognitive developmental theories is how to integrate these interesting but partial views of development into a more recognizable (and probably useful) conception of whole, developing persons. To this end, we also consider an exciting approach to this problem by Howard Gruber and his colleagues (1978).

We conclude this review with a discussion of the implications of these works for programs and research on adult education. A number of recent studies have demonstrated that the developmental perspective promises to have an impact on the education of adults in the future. Drawing on the theories we have presented in this paper, we point out several areas of application and exploration that seem most promising.

Personality Development

From investigations of personality development in the 1960's, Jane Loevinger came to conceptualize her findings in terms of progressive stages of personality development. Loevinger was particularly interested in the development of interpersonal relations and intrapsychic functioning, especially self-awareness and self-understanding. She developed a comprehensive stage theory of such development that encompasses a broader range of psychological functioning than any other current construct.

Loevinger has designated her theory as an account of "ego development." It is important at the outset to be clear about her understanding of the term "ego," for her usage differs from the more widespread psychoanalytic use of the term. The Loevinger conception of the ego emphasizes a person's central ways of making sense of his/her world, that is, the overall mental process through which a person creates and maintains a frame of reference for understanding events and for acting in the world.

For Loevinger, the ego is a process primarily concerned with making sense of interpersonal and intrapersonal life: it is the process by which a person creates understanding of self and others. Her theory thus assimilates development that is studied under the headings of moral development, socialization, character, or personality development, as well as some aspects of cognitive development. Loevinger hypothesizes the existence of a core system of meaning making, and suggests that manifestations of this core system have been studied by psychologists and sociologists from a variety of perspectives. Her aim has been to describe this central process, and in doing so to synthesize the findings of the many researchers who have encountered these phenomena before.

Loevinger and her associates have developed a procedure to systematically describe the ways that persons make sense of themselves and their relationships with others. They have

identified 10 different stages of such sense-making. When arranged in the appropriate order, the stages display an apparently systematic progression from patterns that are simple and rigid to forms of sense-making that are more flexible, highly differentiated, and organized. Further, these 10 levels appear to constitute a developmental sequence. Although adequate longitudinal studies of this progression have not yet been completed, Loevinger's theory can be tested because she has a direct measure of ego development (Loevinger and Wessler, 1970), the validity of which is supported by a variety of accumulating evidence. (See Hauser, 1976, for a useful review of the construct validity of Loevinger's ego measure.)

Loevinger's theory of ego development currently casts the 10 measurable levels as a series of seven major stages and three transition ones, each of which reflects a discrete and relatively stable pattern of interpersonal and intrapersonal functioning. A discussion of the difference between the major and transitional stages is beyond the scope of this paper, and we refer interested readers to Loevinger's 1976 account for further information. In general, what we say about stages in this paper applies to all 10 levels.

Ego stage, as Loevinger understands it, describes the central organizing principle of personality. She hypothesizes four major dimensions of human development: ego development, physical development, psychosexual development, and intellectual development. The stage-like organization of ego, as the personal system for understanding oneself and others, sets the context in which the other lines of development have their expression in the personality. Given its dominant role in personality, the ego process contributes greatly to an individual's sense of identity. Because of this centrality, ego organization is resistant to change. Thus, aging does not guarantee development. Stage change in adults is rare, and when it does occur, it often initiates a major restructuring of personal identity.

The ego development construct has been created through extensive clinical studies and the use of a projective test,* which has been carefully correlated with clinical observations. The construct is thus more descriptive than philosophical or analytical. The system can best be understood through the analysis of projective test responses associated with each stage. To give a sense of the progression of ego development, we are including two descriptions of the sequence of stages. Table 3 presents Loevinger's 1976 summary. In addition, we briefly sketch the progression of interpersonal and intrapersonal meaning making in the following paragraphs. Each stage is identified by a name—e.g., "Impulsive"—which suggests the predominant conscious preoccupation of persons best described by that stage. In addition, Loevinger identifies each stage by a code consisting of an "I," for "Integration Level," followed by a number.**

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*The projective test is a pencil-and-paper test involving a 36-item sentence completion exercise. Subjects complete 36 sentences from incomplete stems such as "Education..." and "What gets me in trouble is..." The system of scoring completions was developed through a process of comparing responses to the test with the results of extensive clinical evaluations of the research subjects (Loevinger and Wessler, 1970). The test has since been subjected to a number of reliability and validity studies, as well as used in a variety of other research programs (Hauser, 1976).

**Lasker and Strodtbeck (1978) cite the results of a 1974 national Harris poll in which 6 items of Loevinger's ego measure were included. Although the error of estimating stage from such a short test form is very great, the resulting demographic profile for adult Americans was interesting. They found the following percentages at each stage: *Impulsive* (11 percent); *Self-Protective* (16 percent); *Self-Protective/Conformist* (10 percent); *Conformist* (27 percent); *Self-Aware* (16 percent); *Conscientious* (17 percent); *Individualistic* (2 percent); *Autonomous* and above (1 percent).

TABLE 3

SOME MILESTONES OF EGO DEVELOPMENT

Stage	Code	Impulse Control, Character Development	Interpersonal Style	Conscious Preoccupations	Cognitive Style
Presocial Symbiotic	I-1		Autistic Symbiotic	Self vs. non-self	
Impulsive	I-2	Impulsive, fear of retaliation	Receiving, dependent, exploitative	Bodily feelings, especially sexual and aggressive	Stereotyping, conceptual confusion
Self-Protective	△	Fear of being caught, externalizing blame, opportunistic	Wary, manipulative, exploitative	Self-protection, trouble, wishes, things, advantage, control	
Conformist	I-3	Conformity to external rules, shame, guilt for breaking rules	Belonging, superficial niceness	Appearance, social acceptability, banal feelings, behavior	Conceptual simplicity, stereotypes, cliches
Conscientious-Conformist	I-3/4	Differentiation of norms, goals	Aware of self in relation to group, helping	Adjustment, problems, reasons, opportunities (vague)	Multiplicity
Conscientious	I-4	Self-evaluated standards, self-criticism, guilt for consequences, long-term goals and ideals	Intensive, responsible, mutual, concern for communication	Differentiated feelings, motives for behavior, self-respect, achievements, traits, expression	Conceptual complexity, idea of patterning
Individualistic	I-4/5	*Add:* Respect for individuality	*Add:* Dependence as an emotional problem	*Add:* Development, social problems, differentiation of inner life from outer	*Add:* Distinction of process and outcome
Autonomous	I-5	*Add:* Coping with conflicting inner needs, toleration	*Add:* Respect for autonomy, interdependence	Vividly conveyed feelings, integration of physiological and psychological, psychological causation of behavior, role conception, self-fulfillment, self in social context	Increased conceptual complexity, complex patterns, toleration for ambiguity, broad scope, objectivity
Integrated	I-6	*Add:* Reconciling inner conflicts, renunciation of unattainable	*Add:* Cherishing of individuality	*Add:* Identity	

NOTE: "*Add*" means in addition to the description applying to the previous level.

Source: Loevinger, 1975

- *Presocial and Symbiotic* (I-1). This level of development is characteristic of infancy. Relations to others are dependent, and the distinction between self and other is not clearly experienced. The degree of self-awareness cannot be researched because infants lack developed language.
- *Impulsive* (I-2). Relations to others are dependent and exploitative. One's sense of self is identified with one's bodily impulses, and blocking of impulse gratification is experienced as a deep threat.
- *Self-Protective* (Delta). Relations to others are characterized by caution and a protective "shell." Persons at this stage are often highly manipulative. Internally, this

person is not overrun by impulses, as is the impulsive type, but still identifies strongly with his/her immediate desires and is oriented toward a kind of self-centered pursuit of wishes.

- *Self-Protective/Conformist* (Delta/3). This is a transition state between the self-protective stage and the conformist stage. Its characteristics have not been well differentiated at the clinical level, but it appears as a distinct clustering of responses on the sentence completion test.
- *Conformist* (I-3). Persons at this level seek to conform to the wishes of others, seek acceptance from others, and orient their own behavior primarily in terms of others' expectations. At this level, a new relation to oneself emerges. One's desires are inhibited in order to conform to others' expectations. Nonconforming desires are often sources of feelings of shame and are usually kept secret and actively suppressed or repressed.
- *Self-Aware* (I-3/4). This is currently regarded as a transition state, but it is so widespread and so stable that it may in the future be reclassified as a full developmental stage. This state is marked by a desire for others' approval for one's own independent actions. One deeply needs approval and respect from others; at the same time, there emerges a new awareness of oneself as a unique individual in the world and a new desire to express that uniqueness in actions and achievements. Loevinger states that "most of the late adolescent and adult population in urban United Stated are at the Conformist Stage or the Conscientious Stage or squarely between them" at the I-3/4 state (Loevinger, 1976, p. 417).
- *Conscientious* (I-4). Relationships with others at this stage take on new qualities of responsibility, mutuality, and concern for open communications. One has a new capacity to take responsibility for one's own life and goals. One can act toward one's goals without being overly concerned with the acceptance and respect of others. Shame at offending others is replaced in this stage by a sense of guilt when one does not live up to one's own standards.
- *Individualistic* (I-4/5). This is another transition state. It is characterized by relationships with others that incorporate all the responsibility and mutuality of relationships at the conscientious level, but this stage adds a concern for others' personal growth and for respecting others' inner and outer freedom. There is an increasing awareness of oneself as a growing person. Self-fulfillment begins to be valued on a par with achievement in the world.
- *Autonomous* (I-5). Interpersonally, at this stage there is a deepening of the qualities manifested in I-4 and I-4/5, with a clearer understanding of how to respect and to further the development of others. Intrapersonally, there is a new awareness of oneself as ambivalent and as characterized by psychological multiplicity and inner conflict. This new awareness of one's inner life results in turning inward to address psychological needs. By dealing with these needs and coming to continually deepening self-understanding, persons characterized as I-5 develop a new sense of wholeness and an ability to express their needs more fully in their activities in the world.
- *Integrated* (I-6). This stage is empirically rare. Loevinger notes that in most groups no more than one percent of the members would be best characterized by this stage (Loevinger and Wessler, 1970). With the responsibility and respect characterizing

interpersonal relationships at stages I-4 and I-5, there emerges a new valuing of the preciousness of all life and a sense of the rarity and specialness of each human being. The inner life of persons at this stage is characterized by the creative integration of inner multiplicity and the ability to live in ways which further inner depth and integration. This stage may characterize persons such as those described by Maslow (1970) as "self-actualizing."

An understanding of ego development has many implications for educational practice and research. We discuss these further in a later section, but we wish to introduce some of them here. Studies show that adults at varying ego stages construe their experience in very different ways. Education is no exception. Depending upon ego stage, adults differ in the sorts of relationships they attempt to create—and do create—with peers and teachers. Adults differ in the role they expect knowledge and education to play in their lives. And they differ in how they cope with the stresses of the educational process (Weathersby, 1977; Donnelly, 1979). Further educational research is needed to reveal how learners at different stages experience educational environments and respond to programs. And formative research is needed to develop educational programs that more fully engage learners at each stage. Potentially, the constructs presented by Loevinger and other researchers offer a unique and holistic approach to understanding the progress of individuals in educational settings.

Educational achievement is statistically correlated with level of ego development (Loevinger and Wessler, 1970; Hauser, 1976; Lasker, 1978a). Indeed, some studies show that education can deliberately stimulate ego development (Erickson, 1974; Lasker, 1978b). Further exploration of the relationship between education and ego development could shed light on both processes. Moreover, it could help determine the feasibility and desirability of education for ego development. Perhaps important contributions to educational practice in the future may evolve out of a sensitive blend of traditional pedagogies with approaches designed to further the personality development of participants.

Intellectual and Ethical Development

William Perry and his associates have studied the intellectual and ethical development of Harvard and Radcliffe college students (Perry, 1968). For educators, the work has the advantage of having been created as part of research on how students experience the educational process. Perry interviewed college students from the classes of 1958, 1962, and 1963 at the end of each of their 4 academic years. Out of 140 participants (112 males and 28 females), 84 finished the 4-year sequences. The interviews used an open format beginning with: "Why don't you start with whatever stands out for you about the year?" The interviews were intended "to obtain from the students their own reports of their college experience, in their own terms" (Perry, 1968, p. 18).

In response to the opening question, and to the sensitive probing which followed, most students reflected deeply upon their college experience. The transcripts revealed that a central issue for them was the discovery that fundamental questions of academic and daily life do not have pat answers. Issues, they learned, may be validly approached from many different perspectives, and no single authoritative solution exists. Students often came to this discovery slowly and reluctantly, for it usually meant that they were forced to challenge deeply held and previously unquestioned values. When students did come to this perspective, they often felt lost in a relativistic universe with no adequate means to decide fundamental life questions.

Feelings of despair, inability to make important life choices, and inability to take planned action in relation to future goals often resulted. Students who successfully moved beyond this morass did so by the discovery of personal commitment. They found that although fundamental questions do not have fixed answers, these same questions can be tentatively answered. The test of the effectiveness of these fluid answers is found in committed action and the thoughtful consideration of the emerging consequences.

From these trends, Perry formulated a stage-developmental scheme that is outlined in table 4. The scheme is centered on development of intellectual self-understanding and on the related development of the capacity for post-relativistic personal commitment. This scheme is more specifically focused than Loevinger's holistic conception of ego development, and it is unclear as yet how the two lines of development are related. Perry's scheme is, at the same time, less sharply delineated and reductive than the work of the cognitive developmentalists, which is discussed in the following section.

Perry found that even in the relatively homogeneous setting of Harvard and Radcliffe colleges, individuals varied widely in development and that these differences were associated with how they experienced educational situations. For example, students at lower developmental levels—the pre-relativistic positions 1, 2, and 3—tended to expect that educators, because of their authority, would know correct answers to fundamental problems. These students were uncomfortable when those in authority did not provide authoritative answers and felt that such teachers were either "hiding the real answer," incompetent, or perhaps honestly expressing the limits of present knowledge. The latter understanding, however, was based on the assumption that eventually society's authorities will discover answers. These students' limited system of understanding made it difficult for them to learn how to deal with ambiguous areas of inquiry, for they found such topics threatening to their (usually nonconscious) epistemology.

Students at the middle developmental levels—the relativistic positions 4 and 5—tended not to believe in the existence of authoritatively correct answers except to rather limited and technical questions. These students were unable as yet to conceive of post-relativistic commitment, and thus experienced a great deal of apathy and despair resulting from their epistemological stance. Reflective and critical discussion of fundamental questions were interesting to them, but because they did not believe in answers they did not find such discussions helpful. Much of the school experience was meaningless to them.

Students at the higher developmental levels—the post-relativistic positions 6, 7, 8, and 9—discovered that personal commitment is necessary and possible without possessing clear answers to fundamental questions. Further, these students discovered that personal commitment actually produces meaningful and effective answers to many questions. For these students, college education took on a new meaning; it was viewed as a way to develop and test one's evolving commitments. Thus, their participation became qualitatively different as it became organized by their senses of individual purpose.

Although the process of development described by Perry is not fully understood, much evidence suggests that relativism is often a response to encountering other persons having differing perspectives. Students leaving communities, which are homogeneous in assumptions about life and the world, find themselves challenged when they arrive in a university setting with a mixture of students with varied perspectives. Confusion is only increased when students

TABLE 4
PERRY'S POSITIONS OF INTELLECTUAL AND ETHICAL DEVELOPMENT

Main Line of Development

Position 1: *Basic Duality*. The student sees the world in polar terms of we-right-good vs. other-wrong-bad. Right Answers for everything exist in the Absolute, known to Authority whose role is to mediate (teach) them. Knowledge and goodness are perceived as quantitative accretions of discrete rightness to be collected by hard work and obedience (paradigm: a spelling test).

Position 2: *Multiplicity Pre-Legitimate*. The student perceives diversity of opinion, and uncertainty, and accounts for them as unwarranted confusion in poorly qualified Authorities or as mere exercises set by Authority "so we can learn to find The Answer for ourselves."

Position 3: *Multiplicity Subordinate*. The student accepts diversity and uncertainty as legitimate but still temporary in areas where Authority "hasn't found the Answer yet." He supposes Authority grades him in these areas on "good expression" but remains puzzled as to standards.

Position 4: *Multiplicity Correlate or Relativism Subordinate*. (a) The student perceives legitimate uncertainty (and therefore diversity of opinion) to be extensive and raises it to the status of an unstructured realm of its own in which "anyone has a right to his own opinion," a realm which he sets over against Authority's realm where right-wrong still prevails, or (b) the student discovers qualitative contextual relativistic reasoning as a special case of "what They want" within Authority's realm.

Position 5: *Relativism Correlate Competing or Diffuse*. The student perceives all knowledge and values (including Authority's) as contextual and relativistic and subordinates dualistic right-wrong functions to the status of a special case, in context.

Position 6: *Commitment Foreseen*. The student comprehends the necessity of orienting himself in a relativistic world through some form of personal Commitment (as distinct from unquestioned or unconsidered commitment to simple belief in certainty).

Position 7: *Initial Commitment*. The student makes an initial Commitment in some area.

Position 8: *Orientation in Implications of Commitment*. The student experiences the implications of Commitment, and explores the subjective and stylistic issues of responsibility.

Position 9: *Developing Commitment(s)*. The student experiences the affirmation of identity among multiple responsibilities and realizes Commitment as an ongoing, unfolding activity through which he expresses his life style.

Conditions of Delay, Deflection, and Regression

Retreat: Active denial of the potential of legitimacy in Otherness; the student entrenches in the dualistic, absolutistic structures of Position 2 or 3. Variants of retreat involve reaction, negativism, and becoming a dedicated reactionary or dogmatic rebel.

Temporizing: A prolonged pause (full year) in any position, exploring its implications or explicitly hesitating to take the next step but not entrenching in the structures of Escape.

Escape: Settling for Position 4, 5 or 6, by denying or rejecting their implications for growth, using the detachment of these positions to deny responsibility for commitment through passive or opportunistic alienation.

Source: Perry, 1968, pp. 9-10.

are faced by professors who will not tell them what they should believe, except that there *are* multiple perspectives—which in its own way *is* a perspective. Relativism may also be promoted when one's perspective is challenged by events that are inconsistent with it. Examples include the effects of the Vietnam War and the Watergate scandal on those whose views included the uncritical assumption of government integrity. We speculate that relativism increasingly affects many adults in the United States, particularly as the culture becomes both more mobile and more reflective about its own presuppositions.

The primary limitation on Perry's findings is that they are based on research on a sample of college students at two highly selective schools. Additional research is needed to discover whether similar developmental patterns exist in older adults and adults found in other settings. If Perry's findings are widely generalizable, then adult learners at various developmental levels can be predicted to respond to instruction in markedly different ways. Educators and programs that respond to these differences may increase the efficacy of educational processes considerably. Similarly, it may be appropriate to create educational supports that help adult learners move through relativism to the stage of personal commitment. Further studies can help us understand the extent and consequences of adult relativism and explore whether or not development toward personal commitment can be a legitimate goal of adult education.

Cognitive Development

We have discussed in considerable detail Loevinger's theory of ego development and Perry's theory of intellectual and ethical development. Each of these describes a broad, holistic developmental domain. We now review a number of developmental theories that more precisely target development in specific psychological and social domains. Foremost among these are the various theories that have emerged through "cognitive developmentalism." This approach involves the application of the epigenetic model of cognitive development to specific areas of intellectual functioning.

The work of Jean Piaget (1926) initiated the cognitive developmental movement. Researchers still find Piaget's insights stimulating in suggesting new areas of exploration. Unfortunately, for those interested in adult development, Piaget has confined his work to the study of children's cognitive development. However, as noted earlier, in the 1950's Lawrence Kohlberg began cognitive studies of moral development. Kohlberg, stimulated by Piaget's brief explorations of moral thought in children, began a study of adolescent thinking about hypothetical moral dilemmas. In this, he focused on subjects' conceptions of justice and human rights.

From analysis of interviews, in which subjects were asked to discuss and defend their thinking, Kohlberg derived a stage theory of moral judgment. As illustrated in table 5, the theory posits six discrete stages, which more generally can be categorized into three major levels of moral development: "pre-conventional," involving hedonistic, asocial responses to questions about hypothetical dilemmas; "conventional," involving generally conformist responses to hypothetical dilemmas; and "post-conventional," involving responses to moral dilemmas that demonstrate an understanding of moral and social principles and valuing of principled action over conformity (Kohlberg, 1957).

Though Kohlberg's original study was conducted with adolescent males, his developmental stage theory has subsequently been researched with women and men of all ages. The

TABLE 5

KOHLBERG'S STAGES OF MORAL JUDGMENT

Basis of Moral Levels Judgments	Stages of Development
I. Moral value resides in external, quasi-physical happening, in bad acts, or in quasiphysical needs rather than in persons and standards.	*Stage 1*: Obedience and punishment orientation. Egocentric deference to superior power or prestige or to a trouble-avoiding set. Objective responsibility.
	Stage 2: Naively egoistic orientation. Right action is that which instrumentally satisfies the self's needs and occasionally others' needs. Awareness of relativism of value to each actor's needs and perspectives. Naive egalitarianism and orientation to exchange and reciprocity.
II. Moral value resides in performing good or right roles, in maintaining the conventional order and the expectancies of others.	*Stage 3*: "Good-boy" orientation to approval and to pleasing and helping others. Conformity to stereotypical images of majority or natural role behavior, and judgment by intentions.
	Stage 4: Authority and social-order maintenance orientation. Orientation to "doing duty" and to showing respect for authority and maintaining the given social order for its own sake: Regard for earned expectations of others.
III. Moral value resides in conformity by the self to shared or shareable standards, rights, or duties.	*Stage 5*: Contractual, legalistic orientation. Recognition of an arbitrary element or starting point in rules or expectations for the sake of agreement. Duty defined in terms of contract, general avoidance of violation of the will or rights of others, and majority will and welfare.
	Stage 6: Conscience or principle orientation. Orientation not only to actually ordained social rules but to principles of choice involving appeal to logical universality and consistency. Orientation to conscience as a directing agent and to mutual respect and trust.

Source: Scharf, 1978, p. 29.

pre-conventional and conventional levels have been confirmed and refined through a number of studies. However, the post-conventional level has been the subject of a great deal of controversy (Brown and Hernstein, 1975; Gilligan, 1977; Edwards, 1975; Simpson, 1974; Holstein, 1976). More relevant to our present concerns are objections that the theory: (1) does not adequately reflect moral development in many women; and (2) does not reflect moral development in women and men who, unlike adolescents, have had significant experience with real existential moral dilemmas. Kohlberg (1973) has addressed the latter of these issues, accordingly modifying his criteria for higher stage judgments.

Currently, Carol Gilligan and Michael Murphy, close associates of Kohlberg, may be providing the most promising work on both women's moral development and the moral development of adults generally. In research on adult women facing actual moral dilemmas, Gilligan (1977) identified a line of moral development that parallels Kohlberg's but features the development of a sense of caring responsibility for oneself and others. Further, in longitudinal research on women and men in late adolescence and early adulthood, Murphy and Gilligan (1980) have proposed a restructuring of Kohlberg's higher developmental stages that appears to make the stages mirror real development in adult moral judgment.

Despite, and even because of, the controversy it has created, Kohlberg's work already has had substantial influence on educational research and educational practice. Moral development involves the progressive understanding of the processes and principles through which social relationships and the order of societies are created and maintained. In this way, moral development theory can inform the content of educational programs in diverse areas, including social studies, political science, and management. In addition, moral development theory can inform the processes of education, enabling educators to create environments in which moral development is fostered or, at least, supported. For example, Kohlberg and his associates have conducted pioneering efforts in deliberate moral education and in the creation of just organizational climates with adolescents in high schools and with adults in prisons. For both groups, a significant success has been achieved, particularly in stimulating participants to move from the pre-conventional level of moral judgment to the conventional level. This work and some of the controversies involved are discussed in the collection of articles edited by Scharf (1978).

The success of Kohlberg's effort and its limitations have stimulated the creation of other cognitive developmental theories. These are distinct from Kohlberg's formulation, but were elaborated in relation to it. To convey the range of this work, we briefly introduce three of these theories.

Robert Selman (1971) has sought to identify developmental patterns more fundamental (in a reductive sense) than Kohlberg's. Selman's work has centered on the development of social cognition—interpersonal understanding and role-taking ability—in children. It may be possible to extend Selman's approach to the study of interpersonal understanding in adulthood. If so, this could have value in the design and evaluation of educational programs where interpersonal understanding is central. These include counselor and teacher education, and management and human relations education.

Robert Kegan and James Fowler have been influenced by Kohlberg and Piaget but have chosen more comprehensive domains of study. Kegan (1977) has chosen to study the

development of interpersonal understanding and functioning. His work parallels, stage for stage, that of Jane Loevinger. However, there are differences. First, Kegan's method is to analyze clinical interviews and counseling sessions and is thus more phenomenological and intervention oriented than Loevinger's. Second, he has retained something of the cognitive developmental interest in abstract modeling of underlying processes. Because of this process orientation, his work may hold more potential than Loevinger's for understanding the inner dynamics of intrapersonal and interpersonal reality.

James Fowler (1975) has conceptualized a six-stage theory of faith development, which is based on indepth interviews with over 100 subjects. Faith, in Fowler's work, is separated from a strictly religious context and refers to one's orientation to and conception of the ultimate determining realities in one's life. Thus, for a religious person, faith might involve a theistic conception of the ultimate determining realities in life, and would include an understanding of how one is connected to such realities. For a political person, faith might involve a belief in the ultimate determining power of cooperative human action, and would incorporate one's lived assumptions about one's place in that action. The value of Fowler's work is that it highlights the place of both conscious and nonconscious personal philosophies in the lives of adults. His insights have many implications for educators concerned with religious, philosophical, and political development; they also offer vital insights for those concerned with issues of cultural change, modernity, and the influence of world perspective on educational processes.

The four cognitive developmental theories we have considered, as well as others of this type (Basseches, 1978), are interesting and illuminating for the experiences from which they have been derived. However, in emphasizing underlying structures of knowing and deemphasizing questions of valuing and acting, the overall approach is reductive. Furthermore, by studying specific experience areas (e.g., moral judgment, social role taking, faith), the cognitive developmental perspective tends to generate a series of partial views of experience. The combined effect of a reduction to the cognitive and of a focus on narrow domains is that it is difficult to use cognitive developmental insights to construct a recognizable representation of the development of a whole, multidimensional adult.

One way to deal with this is to correlate development in the various domains. Each of the theorists we have discussed, in fact, has speculated upon the relation of their work to that of the others (Kohlberg, 1969; Selman, 1971; Broughton, 1975; Fowler, 1975); however, direct correlational studies are rare. In the case of several theories, correlational studies would be difficult because the continual refinement of scoring systems has made reliable and consistent scoring difficult.

In the four correlation studies of which we are aware, the dimensions studied were found to be related but not developmentally identical. Broughton (1975) compared epistemological development with moral development and was able to demonstrate empirically that the two dimensions are significantly associated. However, his data do not enable further elaboration of the link. Mischey and Sullivan (1976) found a relationship between faith development and moral development. In another study, Sullivan et al. (1970) found association between moral development, Loevinger's ego development, and Hunt and Halverson's measure of conceptual complexity. Lambert (1972) also found a significant association between ego development and moral development. The weakness of the simple correlational studies is that while some relationship can often be demonstrated, the causes underlying the statistical relationships

are not revealed. Research methods are needed that can be used to explore the processes linking these domains. This would open the way to creating a holistic conception of the person out of the various cognitive developmental studies.

An additional limitation on cognitive developmental theory has been its inability to take seriously the context in which development occurs. Kitchener (1978) argues that the use of epigenesis as a guiding research metaphor leads to a deemphasis of context. In embryology, the field where the concept of epigenesis originated, the environment plays a limited role in developmental processes—primarily supplying basic nutrients and a physical setting for development. The central structure of embryological development is guided from within the organism. Cognitive developmental theory has always conceived development as happening within a context, but it has tended to minimize the importance of contextual factors in shaping cognitive processes. In particular, cognitive developmental research has undervalued the effects of language and culture upon development (Cole and Scribner, 1974; Sullivan, 1977).

To evolve a more sophisticated understanding of the effects of context on development, it may be necessary for cognitive development research to relax its reliance on the guiding epigenetic metaphor, while continuing to value and utilize the insights that have been made possible through its use. Edward Gruber and his associates provide a promising line of inquiry in this direction. Gruber, a cognitive psychologist who has long been closely associated with Piaget, has fully assimilated Piaget's cognitive developmental perspective and his clinical method of study. However, Gruber has departed somewhat from the main line of cognitive developmentalism in order to take into account many aspects of a person's life. To this end, he has been doing studies of adults—unlike most previous cognitive developmental studies.

Gruber has focused on the development of extraordinarily gifted and creative adults. His major published work to date is an extensive study of the thought of Charles Darwin (Gruber, 1974). Using a close textual analysis of Darwin's notebooks, Gruber worked out an account of Darwin's cognitive development during the 2-year period when Darwin worked out the key aspects of the theory of biological evolution. Through this study, Gruber came to appreciate that creative cognitive activity occurs in the context of a creative life—an important aspect of which is the sustained purpose that the individual maintains over long periods. Gruber notes that maintaining purpose is a creative endeavor in its own right, and he has conceptualized this endeavor as the evolution of a system of purpose, which usually operates in cooperation with the individual's evolving cognitive system.

Gruber further refined these ideas into an approach to adult development that he calls the "evolving systems approach" (Gruber, 1978). This focuses on adult development along three dimensions: cognitive, purposive, and affective. Each of the three dimensions is conceived as a system in relation to the other two—with each system evolving in relation to the others as life proceeds.

Gruber has combined the central concepts of his evolving systems approach with a pioneering use of close analysis of material written by his subjects, such as journals. Through these methods, he and his colleagues are beginning to model the unfolding of the three systems in the work of creative persons. So far, Gruber has published a study of Darwin (in 1974) and is at work on a study of Jean Piaget. His associates have completed studies of varying depth on Charles Lyell (Rudwick, 1977), John Locke (Moore-Russell, 1978), William

James (Osowski, 1979), Isaac Newton (Tweeney, 1979), William Wordsworth (Jeffrey, 1979), and Mary Wollstonecraft (Burns, 1978).

We believe that the approach being developed by Gruber and his colleagues may have important implications for understanding all persons, not just those of extraordinary giftedness. The research methods and key concepts that are emerging from this work can also be applied, for example, to understanding the development of an adult learner during a crucial period in his/her life.

One can foresee case studies of the evolving systems of purpose, cognition, and affect in adult learners that would highlight the micro-development of these learners and allow specific inferences about the effects of various educational activities and experiences. While no longer strictly epigenetic, this approach retains awareness of the fundamental importance of the cognitive dimension. However, it adds an attention to the whole evolving person, to the temporal processes of learning and change, and to the contexts in which learning takes place. In this way, it may provide a fuller, and likely more useful, understanding of adult life and development.

Implications of Stage Theory for Education

There are two dominant points of view about the educational relevance of stage theories. In one, the concern is to match instruction and curriculum to the different types of learner mentality. In this view, matching instruction to the learner's stage of development facilitates learning because material is presented in a form that is most consistent with the student's system of thinking and is thus easier to incorporate. Conversely, learning problems are understood as mismatches between message and learner; ideas encoded in the logic of one level, it is argued, are confusing or simply uninteresting at another level. The matching approach is predicated in part on the observation that there is no guarantee of periodic stage change in adulthood. Many adults are likely to remain at their current level for years or decades. Therefore, learners must be met where they are, and any educational experience should be phrased in the "language" of the learner.

A second view is that stage change is infrequent only because education has not been designed for development. With proper stimulation, it is believed that all adults can grow, that they can shift the way that they see their world. Rather than seeing stage theory as merely informing ongoing educational practice, development is viewed as the major aim of education. It is believed that pushing learners to the next stage achieves the most profound education—changing the way in which all previous knowledge is actively engaged and brought to bear in the construction of meaning.

In this section, we consider these "matching" and "pushing" uses of stage theory in education. We emphasize that merely because it is possible to outline the contrasting assumptions of each approach does not mean that each area has been thoroughly explored. To the contrary, our knowledge of each is tentative. Thus, we present the current evidence and outline some of the difficulties with each approach so as to sketch some of the next questions that might be addressed in these two most promising applications of stage theory.

Matching Instruction to Learner Stage. If developmental theory can be useful in tailoring instruction, one needs a way to extrapolate from stage descriptions to issues bearing

TABLE 6

IMPLICATIONS OF EGO STAGE FOR ADULT EDUCATION

Stage of Ego Development	What Is Knowledge?	What Use Is Knowledge?	Where Does Knowledge Come From?	Motive for Education
Self-Protective (Delta)	A *possession* that helps one to get desired ends; ritualized actions that yield desired outcomes	Means to concrete ends, used to obtain instrumental effects in world Education to *get* 'X'	From external authority, from asking *how* to get things	Instrumental; to satisfy immediate needs
Conformist (I-3)	*General information* required for social roles; objective truth, revealed by authority	Means to get status, social approval, and maintain appearances; used to meet expectations and standards of significant others Education to *be* 'X'	From external authority, from asking *how* things work	To impress significant others; to gain social acceptance and entry into social roles
Conscientious (I-4)	*Know-how*: Personal skills in problem-solving	Means to attain competence in work and social roles; used to achieve internalized standards of excellence and to act effectively Education to *do* 'X'	Personal integration of information based on rational inquiry, from setting goals, exploring causal relationships, and asking why things work	To achieve competence relative to standards of excellence
Autonomous (I-5)	*Personally generated insight* about self and nature of life; subjective and dialectical; contradiction and paradox as central	Means to self-knowledge, self-development; used to transform self and the world Education to *become* 'X'	Personal experience and reflection, personally generated insights, judgments, and paradigms from asking if things are as they appear	To deepen understanding of self, world, and life cycle; develop increasing capacity to manage own destiny

Source: Lasker and deWindt, 1974.

directly on education itself. Some constructs are defined in ways that make their application to learning more immediately evident. For example, Perry's (1968) stages of intellectual development were designed to account for the ways that persons view learning. As such, they give insight into how the student is likely to approach education given the way he views authority and how he conceives of truth. However, other constructs that have not been defined in an educational context also seem to empirically distinguish the ways in which learning is viewed. For example, responses to an item about education on Loevinger's ego development test (Loevinger and Wessler, 1970) show stage-related variations: at lower levels, education is viewed as a thing one has or gets; at middle ranges, it has practical usefulness; and at higher stages, it is understood as an ongoing process that is intrinsically valuable since it is a means of growth.

A deeper set of stage-related distinctions seems to underlie these conceptual differences. From their extensive work with training groups at different ego stage levels (that is, the members of any one group were at approximately the same level), Lasker and deWindt (1974) noted apparent stage-related differences about how knowledge and learning are conceived, educational motives, teacher and learner roles, and institutional functions. This scheme, which is summarized in table 6, suggests that students at lower stages prefer more structured learning environments, with teachers demonstrating or presenting information that

Institutional Function	Learning Process	Teacher Role	Student Role
To enforce learning by providing examples, showing how things should be done	*Demonstration*: showing how to	*Enforcer*: Teacher as agent who focuses attention and shows how Focus: *showing*	Student acts as imitator of activity
Provide prepackaged general information; to certify level of information internalization	*Revelation*: of truth by expert authority; if conflict between ideas is perceived, one element is dismissed as incorrect	*Instructor*: Teacher as presenter of information (often in impersonal group mode, e.g., lecture) Focus: verbal *presentation*	Student as subordinate in frequently impersonal relation with teacher; student internalizes and parrots information
To provide structured programs that develop concrete skills, opportunities for rational analysis, and practice, which can be evaluated and certified	*Discovery* of correct answer through scientific method and logical analysis; multiple views acknowledged but congruence and simplicity sought	*Role Model and Evaluator*: Teacher models skills, poses questions, outlines forms of discourse, evaluates analytic abilities and skill competencies Focus: *apprenticeship, internship*	Student as subordinate in frequent personal interaction with teacher; student analyzes, critiques information, practices competency
To provide new experiences, to ask key questions, to pose key dilemmas; to foster personally generated insight; to highlight significant discontinuities and paradoxes	*Emerging levels of insight*: learning entails reorganizing past insight into new personally generated paradigms through new experiences. Learning follows dialectical process in which contradiction and multiplicity of views is itself of interest	*Facilitator*: Teacher sets up experience and reflective observation by students, is a resource for planning and evaluation Focus: *facilitating*	Student defines purposes in collegial relationship with teacher as equal participant; emphasis is on personal experience, creating own interpretations and meanings

students can imitate in concrete ways. At higher stages, the preferred learning exchange is less structured, with the student more actively engaging in discovering and constructing answers and the teacher acting more as a role model or a facilitator who directs attention to central questions. Moreover, Lasker and his associates observed that each level related to a preferred social system—a particular mode of exchange between learner and teacher. Left to their own devices, learners at particular levels seemed to recreate particular classroom social systems.

This scheme, based on naturalistic observation, is supported by other studies using other stage constructs. Jesness (1972) documented how learners at different ego stages prefer different types of educational treatments. Broughton (1975) found evidence that conceptions of knowledge and learning are stage-related. A cross-cultural study by Lasker (1978) suggests the possibility that motives for education may be stage-related as well. Working at Empire State College, an experimental college for adult learners, Chickering (1976) independently came to a quite similar set of postulates to those in table 6. Finally, Weathersby (1977) formally tested the scheme in table 6 with a sample of 67 graduate students at Goddard College. She empirically confirmed that ego level was a pervasive, perceptual, and motivational factor in learning. Stages distinguished motives for study, preferred learning style, and valued attributes of the educational environment.

These studies parallel stage theory in implying that adults at different levels actually learn in different ways and therefore need distinct environments to maximize learning. Both theory and research suggest that adults at varying stages differ substantially in the way they selectively attend to what is taught, and organize, recall, articulate, and use information. Studying developmental differences of this kind might significantly increase both our understanding of the learning process and our comprehension of how developmental levels entail distinct systems of information processing.

More basic studies need to test thoroughly assertions like those in table 6, and to answer a variety of related questions. Exactly how do conceptions and assumptions about learning vary by stage? What is the effect on learner behavior of stage-related differences in motivation? What type of exchange do learners at different stages prefer? Do styles of presentation of material have different impacts by stage? If so, what are the design implications for curricula?

The concept of developmental matching could stimulate fruitful research in several areas. For example, do adult learning programs adequately match the interests of potential students at particular stages? Programs that require significant original thinking from adult learners may be appropriate only for those at higher stages of development. Perry (1968), in fact, has shown that at lower levels, individuals construct their conceptions by internalizing the views of authorities, while at higher levels, the learner synthesizes his/her own unique point of view. Similarly, Loevinger's scheme suggests that pursuit of understanding for its own sake tends to occur only at higher levels. Developmental research might uncover differences in the degree to which adults create self-generated frameworks and actively engage in the quest to transform their understanding. Results of this research might illuminate the psychology of adults in educational settings and inform the policy and practice of adult learning programs.

The relation between teacher and learner raises other issues. Developmental stage is likely to affect the interactions of any pair of adults. For example, Palmer (1974) has shown that therapeutic exchanges between delinquents and social workers are enhanced when there is a match between the client stage and the social worker's personality type. Other pilot studies of teacher and supervisor interaction suggest that distinct systems of interaction emerge, depending on the stage and role of each actor (Manthei, 1979). Supervisors at higher developmental levels seem to question, give feedback, and listen in measurably distinct ways.

One profitable line of research might be to focus on how classroom process is jointly affected by the stage of teacher and learner. How do teachers at different levels present material and relate to students? Do successful teachers have a capacity to communicate ideas at a variety of levels; do they unknowingly tailor their communication towards the stage of the learner?

The most central issues will eventually entail curriculum design. Indepth knowledge of learners' conceptual systems should help educators develop programs that are appealing, comprehensible, and effective. By conveying material in a format that is appropriate for the learner, learning will be promoted and educational gains accrue. As yet, there are no longitudinal studies of the impact of matching with adult learners. The California Youth Authority, which in the mid-1950's attempted to empirically identify different types of juvenile delinquents (Sullivan et al., 1957), has long experience in specifying stage-related treatment strategies. For two decades, this project has sought to define and measure the impact of differential treatment strategies. Much of their material is unpublished, but it is a storehouse of

clinical insights on differential reaction to treatment by stage (Palmer, 1974; Jesness, 1972). Extensive reviews of projects such as this should not be overlooked as a means to help organize insight about the design of curricula for learners at different ego stages.

Education to Push Development. In addition to using stage theory as a means to improve the educational process, such theory can be used to envision the ends of education. Some psychologists have argued that development ought to be the central aim of education (Kohlberg and Mayer, 1972). Whether it has been an intentional policy or not, evidence has accumulated that development—attainment of higher stages—is a de facto outcome of education. Studies have repeatedly found a high correlation between stage and years of education suggesting a direct connection, although this association can be confounded by other factors such as SES and IQ (Hauser, 1976). Longitudinal studies provide more convincing data that education stimulates development (Perry, 1968; Winter, et al., 1980). Other studies show that stage, with other relevant factors held constant, predicts occupational mobility, attainment, and performance ratings over periods of many years. (See Candee et al., 1978, for moral stages; Lasker, 1978b, for ego stages.)

Some educational programs have been designed specifically to foster stage change. These developmental interventions, sometimes called deliberate psychological education (Sprinthall and Erickson, 1974), have occurred in a variety of settings; moral development (Blatt, 1972), prison rehabilitation (Kohlberg et al., 1972), counseling (Erickson, 1974 and 1977), teacher education (Erickson, 1975), organizational development (Lasker, 1978b), and high school eduction (Mosher, 1975). Many of these longitudinal studies show significant developmental gains, some under carefully controlled conditions. In general, it does appear possible to consciously stimulate a higher rate of stage change in an experimental group. The difficulty of achieving a developmental gain seems to vary by dimension. For example, a shift in the moral judgment stage seems to be a less complex transformation than a shift in ego stage.

Various studies, including these we have noted, indicate how profound an educational outcome stage change is. Recent research by Gilligan and Belenky (1980) shows that when adults change stage—in this case, moral judgment stage—they abruptly shift their understanding of significant events in their lives (Stover, 1980). In comparing interview transcripts before and after a stage change, the researchers found that the stage change led to past events being rethought into a "new" experience. This appears to entail entirely restructuring how one understands previously acquired knowledge. The impact on the individual is enormous.

The ethical implications of such incidents are sobering. Should development be the aim of educational institutions? Do we have the right to consciously attempt to change the stage of a learner? Is such change necessary or desirable? More bluntly, what is wrong with being at the stage where one is? These questions, and a tangle of others, have surrounded education for psychological change from the start. These are vexing issues that promise to be with us for a long time. In order to examine the impact of our interventions, we need at the very least to be more explicit than we have been about our assumptions and examine them in cross-cultural perspective.

Further, we must trace the broad impact that stage changes make in adults' lives. Initial clinical work suggests that the movement to higher levels is often a releasing experience. Our

clinical impression is that adults who experience major transitions, while sometimes nostalgic for earlier ways of being, seldom want to abandon new ways of understanding. Only by examining the effects of deliberately stimulating development can we better understand the extent to which stage theories can contribute to education which may be personally and socially liberating.

4. Adult Development: Notes on the Future

We have described how adult lives can be understood in terms of phase and stage frameworks. In turn, we have traced how each approach grows out of an underlying metaphor—in the case of phasic theories, the passing of seasons; in the case of stage theories, the biology of epigenesis. Having examined each approach in some detail, one is in a better position to grasp the ways in which they complement each other and together reveal a richer understanding of adult life.

Phasic theories construe development as a continuing response to central life tasks. The life cycle involves a series of periods, correlated with biological age, during which a person must cope with particular demanding situations. Development entails creating ways of living and means of understanding oneself that effectively answer changing requirements of living. Phasic theories are most helpful in revealing the precise nature of the inevitable demands of each part of life.

Contrastingly, stage theories deemphasize the shifting requirements of life situations. Instead, they concentrate on mapping the psychological processes that adults use to create responses to a wide range of situations. Stage theories construe development in terms of increasing flexibility and comprehensiveness in thinking of solutions. While phasic theorists have discovered patterning in the emerging demands of adult life, stage theorists have found developmental patterning in the ways adults respond to life's demands. A person's stage of development is likely to shape how each phase task is understood and dealt with, how dreams are negotiated and illusions abandoned, how life structures are invented and refashioned.

The intersection of stage and phase define unique existential positions. Neither dimension alone reveals how adults think about where they are in life. A simple knowledge of tasks leaves no clear sense of how individuals experience what they face. On the other hand, familiarity with how adults construe their worlds gives only an abstracted portrait of individuals stripped of their contexts. Only a dual approach can provide an adequate picture of individuals in their worlds—the particular conditions in which they live, think, and function. By grasping this whole essence, we can better comprehend patterning in adulthood and perceive unity in the course of unfolding lives. For in observing how adults move from one existential point to another—from one intersection of stage and phase to another—we can see clearly how each life has a unique trajectory. We can understand how each adult travels a special existential path defined by how he/she experiences and copes with a compounding life situation. Thus, seeing from both vantage points simultaneously, we can achieve a kind of compound perspective. We appreciate adulthood's multidimensionality, but at the same time, experience how its dimensions are of a piece, interwoven, whole.

Further, as persons become more aware of patterning in their lives, they are likely to exhibit increasingly a trait peculiar to adults. Unlike other age groups, adults often have an interest in—even an appetite for—their own psychology. Many popular paperback books, newsstand magazines, and national bestsellers are manifestations of this interest. This passion for self-knowledge has not yet fully entered the classroom. When it does, it is likely that adults will routinely study the psychology of their own lives.

One can imagine a variety of effects. By raising consciousness prior to actual events, education could create a hybrid mentality that knows before it experiences. By aiding the anticipation and understanding of transition, education may lessen its turmoil and pain. By predicting pitfalls, education may create the reverse of self-fulfilling prophecies, as adults consciously seek to avoid mistakes others have made. This, in turn, could add a new dialectric to change in adulthood.

Further, by documenting and reporting on society-wide shifts in the psychology and sociology of adulthood—such as those currently occurring for women—education could add legitimacy and clarity to social change, thereby accelerating transformations in progress. In all of these ways, the link between education and adult development may eventually prove to be more profound than any we have sketched so far. For in bringing adults face to face with their own psychology, education may transform adults' self-experience and thereby actually alter the course of adult development itself.

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ADULT LEARNING THEORY: A STATE OF THE ART

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ADULT LEARNING THEORY: A STATE OF THE ART

Although, historically, learning has been taken for granted as a typical and essential human activity, important questions regarding the phenomenon of human learning have yet to be answered. A basic question has tantalized the best thinkers since the first efforts of psychological study were undertaken in the latter part of the nineteenth century: How does learning take place?

In many early attempts to answer this question, it was generally assumed that learners were a youthful and homogeneous population. Other assumptions that apparently influenced the nature of theory development and research investigation were that learning was considered an "other-directed" activity; it took place primarily under the guidance of a teacher and under the purview of institutions given responsibility for advancing and/or transmitting knowledge.

Recent awakening to the potential of learning through one's lifespan has raised doubts among those working with adult learners as to the applicability of traditional theories of learning to this older, diverse group. In essence, no comprehensive theory of learning seems to exist that suffices for the divergent learning episodes that the adult experiences throughout a lifetime. Moreover, adult educators have been unable to articulate an adequate theory of adult learning.

The perspective of this monograph is that this is not an altogether undesirable state of affairs. While research and inquiry ought to continue in order to better illuminate the theories, principles, and conditions of adult learning, the phenomenon is probably too complex for any one theoretical perspective to encompass. Available perspectives from a variety of theoretical orientations help to shed light on what seems to be happening when an adult learns. More is gained from using the diversity of perspectives than from trying to reduce their number, and, in the process, lose the richness that this diversity brings.

This monograph attempts to blend consideration of learning theories with the practical demands of how to design and develop learning experiences for adults. After establishing some definitional ground rules, the major schools of thought concerning learning theory are reviewed, even though most of these were developed through the study of young learners. We then examine the findings from studies of adult learning that shed light on the conditions, purposes, styles, and abilities of adult learners. Merging these two bodies of literature, the monograph attempts to show how the principles derived from the learning theories, conditions, and circumstances of adult learners can be blended to suggest alternative approaches to

designing and understanding adult learning experiences. The monograph concludes with a possible framework and suggested topics for additional research.

1. What Are Learning and Theory?

Any systematic review and analysis of learning theory focusing on the adult population requires clear definitions of two principal terms: learning and theory.

Although definitions of learning vary from theory to theory, definition apparently is not the center of disagreement among the various theorists, according to Hilgard (1966). Disagreement seems to center on facts and interpretations concerning learning. To identify those areas of disagreement, various views of learning and related conditions must be examined.

Thorndike (1933), in one of his early works, states that learning is man's power to change himself (sic). In a more recent definition, Lefrancois (1972) describes learning as "all changes in behavior that are due to experience excluding changes resulting from maturation or artificial chemical changes such as those resulting from drugs." An adult education learning theorist more generally describes learning as "more or less permanent change in behavior that occurs as a result of activity or experience" (Verner, 1971). More recently, Howe (1977) discusses the dilemma of defining learning as changes in behavior, explaining that learning may involve or result in behavioral changes, but that all changes in behavior do not constitute evidence for learning.

In this monograph, the following definition by Hilgard is used for reference.

> Learning is the process by which an activity originates or is changed through reacting to an encountered situation, provided that the characteristics of the change in activity cannot be explained on the basis of native response tendencies, maturation, or temporary states of the organism (e.g., fatigue, drugs, etc.). (Hilgard, 1966, p. 2)

A definition of theory must take into account its nature and uses. Hill (1964) has explained the nature of learning theory in relation to three functions it performs. He states that, first, theory is an approach to the area of knowledge—a way of analyzing, communicating, and conducting research. The researcher's viewpoint determines which important aspects of learning deserve research attention. Second, a theory of learning is an effort to summarize a large amount of knowledge concerning the laws of learning in an economical fashion. Hill comments that some exactness and detail are likely to be lost in this attempt in a science such as psychology. Theories of learning typically leave something to be desired in completeness and precision. The third function of a theory of learning, in Hill's estimation, is "a creative attempt to explain what learning is and why it works as it does" (Hill, 1964, p. 24). Hill concludes that theory-building is fundamentally an effort to determine the undergirding structure of the world around us.

Ausubel (1977) discusses the use of theory through his review of the historical argument between Gage, B.O. Smith, and Hilgard about the relationship of learning theory to the theory of teaching. Whereas theorists such as Gage (1963) and Smith (1961) maintain that learning

theory deals with the ways an organism learns, teaching theory explains how to make the organism respond. According to Gage and Smith, learning theory cannot tell one how to teach. Ausubel and Hilgard, however, argue against the mutual exclusion of the two and stress the formulation of learning theories relevant for the type of "meaningful learning" environments experienced by learners contemporarily (Ausubel, 1977).

The latter interpretation of the use of theory is the basis for defining theory as applied to adult learning in this monograph. Simply stated, the definition of theory should include a description of the phenomena of learning that concern the guidance and improvement of practice, whether it be the act of teaching or the facilitation of learning directed primarily by the learners themselves.

Part of the confusion and misunderstanding about application of traditional learning theory may be the lack of recognition of adult learning that occurs under voluntary conditions. In short, the terminology and assumptions surrounding previous theories are not easily acceptable because they do not reflect the diverse conditions in which adult learning takes place nor the multiple influences that are part of the adult learning experience.

A generalization that borders on oversimplification is that there are really only two theories of learning: behavioristic theory and cognitive theory, sometimes referred to as mechanistic and organismic, respectively. Examination of the literature reveals that these two viewpoints tend to dominate the theory-building arena. However, many conceptual frameworks have been postulated as accurately describing the phenomenon of learning. Several of them may be easily catalogued beneath behavioristic or cognitive schools of thought, but some seem to require new nomenclature.

Early Theories of Learning

Theorists such as William James and John Dewey made attempts of a philosophical nature to explain the phenomenon of learning. Their theories were followed by models that were to have a prominent effect upon present theories of learning.

The seminal, empirical work of Edward Thorndike and others (1928) provided the first comprehensive study of adult learning. Although, as Knowles (1978) points out, Thorndike was more concerned with adult ability to learn than with the adult learning process, his work provided assurance that adults could indeed learn. It was from this early contribution, which developed the concept of "connectionism," that behavioristic theories of learning grew. These theories were to focus on learning as influenced by identifiable stimuli and responses to those stimuli. Although Watson was recognized as the initiator of behavioristic theory, others who followed with unique contributions in explaining learning through behavioral means included Hull, Guthrie, and, more recently, B.F. Skinner.

The second potent influence in the development of contemporary theories of learning was Gestalt psychology. Its beginnings have been attributed to Wertheimer (1938), Kohler (1935), and Koffka (1924), whose work with apes introduced a cognitive perspective to the development of learning theory. Some of those to follow and further develop this branch of thinking were Lewin (1935), with a field theory approach, and Tolman (1959), with a purposive behavior or gestalt-sign theory.

This second major thrust in learning theory departed from behaviorism in its focus on the cognitive structure of the individual, recognizing "insight" as an alternative to "trial-and-error" learning (Hilgard, 1966). Another element introduced by the cognitivists was the prominent role of perception in learning. According to cognitive theorists, the way in which the learner perceived the learning environment affected how learning took place.

Contemporary Views of Learning Theory

Dubin and Okun (1973) provide a succinct, comprehensive review of current theories of learning that have originated from the two major families of theory. The authors have systematically grouped more recent theory models into three basic orientations: (1) behaviorism, which focuses strictly on observable behavior; (2) neobehaviorism, which recognizes stimuli and responses as the only valid indicators of behavior, but also considers what transpires between the stimulus and response; and (3) cognitivism, which treats individuals as rule-forming beings depending significantly on the cognitive structure of the mind to learn. The appropriateness of this classification scheme is discussed later.

The only current behaviorism theory that has been identified by Dubin and Okun is the operant conditioning of B.F. Skinner (1953). This selection is based on Skinner's stress on reinforcement of desirable behavior and lack of attention given the stimulus factor in his operant approach. Operant conditioning concentrates on the link between response and reinforcement as the primary factor in promoting learning. It is from this theory that most behavior modification schemes have been developed.

Neobehaviorism theories include Hull's drive reduction theory (1943), Hebb's neurophysiological theory (1949), Bandura's social learning theory (1977), and Gagne's learning systems theory (1970). In proposing the drive reduction theory—an explanation of Thorndike's earlier law of effect—Hull associates learning performance with drive, habit, strength, magnitude of incentive, and intensity of the stimulus. Another important condition that Hull introduced is that overuse of a response causes inhibition, and inhibition itself can be conditioned.

A second theory classified as neobehavioristic is Hebb's neurological explanation of learning, which emphasizes mediation between the stimulus and response in the form of nerve cell activity. Hebb's proposal has particular importance for training and skill development activities.

The theory of social learning, first proposed by Miller and Dollard (1941) and more recently developed by Bandura, appears to have made a significant contribution toward the integration of cognitive theory and behaviorism. However, it remains primarily a behavioristic explanation. Bandura's theory differs from other behaviorism theories in the manner in which new behavior modes are acquired. Bandura stresses observational learning—learning by imitation of a model. He also calls attention to the concept that imitation may be reinforced through people's imagination of consequences, without their actually experiencing the consequences directly. As Bandura (1977) explains:

> Behavior is learned symbolically through central processing of response information before it is performed. By observing a model of desired behavior, an individual forms an idea of how response components must be combined and sequenced to

> produce the new behavior...people guide their actions by prior notions, rather than by relying on outcomes to tell them what they must do. (p. 36)

Another neobehaviorism model is the learning systems theory purported by Gagne (1970). Gagne contends that learning is best described through eight different ascending stages ranging from the simplest form, stimulus-response, to problem solving. Management of learning conditions and analysis of learning tasks in relation to this hierarchy are fundamental principles of Gagne's theory of learning.

Cognitive theory is divided into at least two major contemporary viewpoints: discovery or inquiry learning (Bruner, 1961), and reception learning (Ausubel, 1967). Bruner explains learning by discovery as an inductive activity in which the learner's cognitive structure is modified through the organization of information into meaningful categories by the learner. Intuitive leaps are presented as essential functions of discovery learning. Bruner claims that learning progresses from psychomotor processes to "iconic" processes and, ultimately, to symbolic representation. The learner learns when knowledge is organized and coded internally. The process also determines later retrieval and application of information.

Whereas Bruner presents an inductive viewpoint of cognitivism, Ausubel suggests a deductive explanation of learning. His concept stresses advanced organization. Learning takes place when the learner uses an imposed structure (advanced organizer) to tap already acquired information, rather than discovering through induction. Ausubel (1967) emphasizes "meaningful" learning through proper organization of materials to be learned.

> By meaningful learning we mean primarily a distinctive kind of learning process and the outcome of this process, namely, the acquisition of new meanings. We characterize the process as one of relating a learning task in nonarbitrary and nonverbatim fashion to relevant aspects of what the learner already knows, and have stated that the process presupposes both (a) that the learning task is potentially meaningful, or that it can be related nonarbitrarily and substantively to the learner's structure of knowledge; and (b) that the learner manifests a corresponding set to so relate it (p. 18)

It would seem reasonable to this author, although perhaps not to Dubin and Okun, to include with the cognitive approaches the work of Jean Piaget. Piaget does not purport to be a learning theorist. He completed most of his research with child subjects, but his research certainly affects the understanding of adult learning. Recently, his work has received attention in the literature as a theory unto itself (Arlin, 1975; Bart 1977). The Piagetian theory, which might be called an intellectual stage theory, attempts to explain the development of human intellect, and, as a result, affects concepts of how learning takes place at all ages. From basic sensory-motor mental development through preoperational and concrete stages to formal operations, Piaget has described the development of intelligence and indirectly explained ways of "knowing." Lately, a fifth stage or division of the formal stage has been postulated as yet another stage of knowing (Arlin, 1975).

Another departure from the Dubin and Okun theory is to separate the humanistic and psychoanalytic approaches from those of cognitive theory. Although there may be a rationale for considering humanistic theory within the cognitive family, unique tenets seem to warrant

separate classification. It thus seems reasonable to create an additional classification that would include the psychoanalytic and humanistic approaches to learning. These have grown out of efforts to study learning from a somewhat unconventional and divergent perspective than the more traditional "ends and means."

The psychoanalytic viewpoint initiated by Sigmund Freud (1920) was obviously developed for therapeutic reasons, but it *has* influenced general thinking about how learning takes place. Likewise, humanistic psychology, spawned by Maslow (1954) and more recently developed by Rogers (1969) and others, is based primarily on clinical treatment motives. According to Hilgard (1966), Freudian psychology has contributed to understanding learning in several ways: psychoanalytic thinking has helped erase the boundaries between the neurotic and the normal, with abnormal psychology being assimilated into general psychology. The concept of "unconscious determination" has changed thinking about human motivation. Today, psychologists readily accept that repressed motivation may lead to inability to verbalize, for example. Finally, the genetic or developmental aspects of psychoanalysis have made the "ego" an integral element of personality organization (Hilgard, 1966, p. 293).

Humanistic theory (sometimes referred to as phenomenological or holistic theory) has as its central theme "self" development. As Combs (1962) describes the self, it is used as an instrument for learning. Theorists who advance the concepts of humanistic psychology maintain that reality for the learner can be determined only through what he or she perceives in the phenomenal world. Learning occurs when one is "becoming," or "self-actualizing." The existential qualities of humanistic theory suggest that no one can be taught, but rather that learning is self-directed through the purposeful pursuit of human needs, the satisfaction of which maintains the human organism in a balanced state.

The psychoanalytic and humanistic theories both recognize integrating conditions within the learner beyond stimulus-response bonding or cognitive processing of information that markedly affect human learning. Ego, in the case of psychoanalysis, and self, from the humanist's view, are the primary instruments of development and learning. There is a radical difference in the way the two constructs are interpreted as functioning in the development process. Psychoanalytic theorists like Freud and Erikson (1963) view development as successfully resolving polarized conditions resulting from human existence (super ego versus id, or integrity versus despair) and emphasize the hedonistic unconscious or innate evil of human nature. Humanistic theories tend to portray motivation as a single-sided, need-revealing process that exhibits trust in the ideal goodness of mankind.

In addition to these major schools of thought, two theories have developed from the application of highly sophisticated methods of investigation available in the second half of this century. They are the mathematical models (Restle, 1964) and the cybernetic, or feedback, theories of learning (Conference on the Acquisition of Skill, 1966). They share a concern for the complexity of abstract reasoning, which is almost beyond comprehension. Restle (1964) feels that mathematical models presently have limited application, but may provide a foundation for better understanding certain types of learning situations (particularly in science and math). He explains:

> The theory is that learning of a single, unitary item is an all-or-nothing event. Before learning occurs, no partial progress is made; after learning has occurred, per-

formance on the problem stabilizes. This theory has been found to fit some simple paired-associate learning and other verbal-learning tasks in the laboratory, and also to fit discrimination-learning and concept-formation experiments. (p. 113)

Cybernetic theory, which was first identified as such by Wiener (1948), has been influenced by the work of Hull, and, more recently, by the efforts of theorists such as Hebb and others. Smith (Conference on the Acquisition of Skill, 1966) explains the cybernetic approach to learning as an "experimental analysis of feedback interactions in closed-looped self-governed systems." He elaborates that, as distinct from traditional stimulus-response theories, cybernetic theory proposes that "the brain be conceptualized not as a synaptic system, but as a neuronic system...nerve cells themselves rather than the synapses become specialized in the development and learning."

In another explanation, Hill (1971) describes cybernetics as analogous to steering a ship in order to keep it on a certain course. If the ship moves from the planned route, the helmsperson adjusts the rudder to bring it back on course. He explains that this analogy presents a general concept of cybernetics: negative feedback, the "adjustments in a system to keep it in a steady state by compensating for any deflections from that state" (p. 199).

In reviewing the major approaches to learning theory, several distinct positions or schools of thought emerge: behaviorism, neobehaviorism, cognitivism, and psychoanalytic/humanistic. As noted, there are substantial variations within these groupings as well as between them. It is also clear that some approaches such as the cybernetic and mathematical models do not neatly fit into these categories. One test of a theory is its ability to support principles of action that will foster or explain learning. Indeed, these alternative perspectives suggest quite different principles.

Before examining these principles, however, recent research on adult learning is examined. While many traditional theories have been developed largely through study of young children and adolescents, adult learning research has often focused on the motivations and conditions of adult learning.

2. Recent Research on Adult Learning

In reviewing research on adult learning, three areas surface: (1) learning orientation research, which pertains to the predisposition or motivation for learning—what causes the learner to engage in learning; (2) learning ability, which refers to changes in performance throughout the lifespan that enhance or inhibit learning; and (3) learning style, which relates to the way individuals approach or process learning content. Style may be a strategy for learning, or a particular way of dealing cognitively with what one encounters in the learning act.

Learning Orientation Research

One of the first who systematically studied the orientation of continuing adult learners was Houle (1963). Houle's effort was complemented by major research efforts of Johnstone and Rivera (1965) and, more recently, by Alan Tough (1971), who investigated patterns of participation in learning. A different, but no less important, research pursuit has been conducted by Boshier (1973).

In his study of 22 individuals engaged in continuing education, Houle discovered three distinct classifications of learners: (1) goal oriented—those who use education to achieve clear-cut objectives; (2) activity oriented—those who take part because of the meaning of participating, as opposed to being drawn by content; and (3) learning oriented—those who seek knowledge simply for the sake of learning. Houle's study suggested that motivation toward learning may be related to one's orientation for participation.

Taking a different approach, Johnstone and Rivera, in a study of participation patterns among adults in parttime educational programs, found that individuals participated in twice as many organization-sponsored programs as self-directed learning activities. Also, 10 percent of adults had engaged in independent study during the previous year. Other findings from the study were that participation was greater for adults with more formal education and that participation in independent study declined with age, from over 10 percent participation in younger adults to 4 percent in older adults.

Johnstone and Rivera also found that men and women participated equally in parttime educational programs, with differences resulting primarily from family life cycles. Finally, level of formal education was found to be more highly related to the extent of participation in continuing education than was any other characteristic. Although the study has been criticized because of the narrow delimitation of parttime educational programs, their work made a substantial contribution to knowledge about adult learning orientations.

Through extensive study of the deliberate learning efforts of adults, Tough and those who have replicated his approach have begun to describe the learning orientation of individual learners. Their findings include that most people engage in at least one to two major learning efforts per year, with a median of eight projects each year involving eight distinct areas of knowledge and skill (Tough, 1971). It was also found that an individual typically spends 700 hours on learning projects each year. More recent reports using Tough's approach (1978) indicate that only about 20 percent of all learning projects are planned by the trained "professional." In the remaining 80 percent, the detailed planning is handled by an "amateur," usually the learner him/herself (73 percent); occasionally, planning is done by a friend (3 percent) or by a group of peers (4 percent). This is almost the reverse of Johnstone and Rivera's findings about independent study.

Tough also relates that the most common motivation for a learning project is anticipated application of what is learned. For example, one wishes to become a good bridge player and studies bridge to meet that end. Curiosity or desire to possess knowledge for the sake of knowledge is less common, as is learning for credit toward a degree or certificate. Tough indicates that only about 5 percent of all learning projects have the latter motives as their basis.

The implications from study of adult learning projects by Tough and others are that much self-directed adult learning is occurring that only recently has been accounted for. According to Tough, adults apparently initiate and conduct most of their own learning. This stream of research should be helpful in better understanding how adults learn.*

*The National Institute of Education is currently sponsoring a project to conduct parallel examinations of sponsored and self-directed learning by adults who have not completed high school.

Learning Abilities and Styles

Since the work of Thorndike, Sorenson (1938), and Lorge (1955), many studies have been devoted to the learning abilities of adults. Recently, much of adult learning research has concentrated on the effects of aging. Learning ability research ranges from describing learning parameters (Allison, 1960; Bosco, 1977; Feringer, 1978; Knox and Sjogren, 1965) to factors affecting learning (Arlin, 1975; Bart, 1977; Grotelueschen, 1972). Gerontological research has also contributed substantially to knowledge about adult learning abilities (Arenberg, 1976; Gounard and Keitz, 1975; Gounard, 1977; Hiemstra, 1975; Lumsdan and Sherron, 1975; Okun, 1977).

Among the findings from the research on adult abilities, one major generalization about adult learning best describes ability throughout the lifespan. Fluid intelligence—which includes perceiving abstract relationships, engaging in short-term memory, forming concepts, and being able to reason abstractly—declines from adolescence throughout adulthood. Conversely, crystallized intelligence—consisting of perceiving relations, formal reasoning, and abstraction, and based primarily on acculturation resulting from formal education pursuits—tends to increase throughout most of the life of adults (Cattell, 1968).

One of the more exciting but only minimally explored areas of research related to adult learning is learning style research. As Smith (1976) points out in his review of the literature, the term is used to refer to techniques, as well as to mental processes and dichotomies such as teacher versus self-directed learning. Of the three emphases mentioned by Smith, cognitive style seems to have received the most attention by researchers as a promising area of investigation.

In his report of studies with graduate students, Cawley (1976) defines cognitive style as the "ways in which an individual selects, organizes, and processes the educative experiences in the environment." Knox (1977) refers to cognitive style as "the individual's typical modes of information processing as he or she engages in perceiving, remembering, thinking, and problem solving." He has subsumed the various styles within nine dimensions:

1. Tolerance versus Intolerance for Incongruity
2. Reflectiveness versus Impulsiveness
3. Constricted versus Flexible Control
4. Focusing versus Scanning
5. Leveling versus Sharpening
6. Complexity versus Simplicity
7. Conceptual Differentiation versus Description
8. Analytic versus Global
9. Breadth versus Narrowness of Categorizing.

Among the various cognitive style theories (Cross, 1976; Knox, 1977) that have been identified, the field independent versus dependent or analytical versus global style has been explored by Witkin and others (1962). More recently, Kolb (1977) has proposed a framework that includes various styles of learning and suggests that effective learners may be those who can call upon various approaches, depending on the purposes and circumstances of the learning. Kirby (1979) has completed a review and synthesis of the literature and research on adult learning styles and the acquisition of transfer skills.

Generally, no one style seems to provide an advantage or disadvantage to the learner across the broad spectrum of learning opportunities. Some research indicates a positive relationship between certain styles and performance on standardized measures that are designed to indicate the degree of knowledge the adult has attained (Loveall, 1979).

Contributions of Adult Education Theorists

In a discussion of concerns about lack of theory and practice integration, Gibb (1960) suggests that the adult educator be aware of several obstacles to the application of learning theory to adult learning:

- Limited population upon which theories are based.
- Overgenerality in the statement of theories.
- Necessary oversimplification at this stage of theory building.
- Special problems of the adult learner.
- Contradictory and conflicting elements of theories.
- Mass of writing in scattered sources.

In an effort to move toward a "functional" theory that might overcome the obstacles mentioned, Gibb presents principles of adult learning as an interpretation of the basis for theories of learning.

- Learning must be problem-centered.
- Learning must be experienced-centered.
- Experience must be meaningful to the learner.
- The learner must be free to look at experience.
- The goals must be set and the search organized by the learner.
- The learner must have feedback about progress towards goals.

Attempting to predict future developments, Gibb identifies several expected changes in adult education and learning theory, including: acceptance of the unstructured growth function of learning, both formally and informally; a greater awareness of the roles of institutions; and expansion of noninstitutional adult education activities. Gibb also predicts a greater concentration upon learner needs, a closer relationship of therapy and learning theory, and an "ascendance" of theories of cognition and insight over theories of punishment and reward.

As mentioned earlier, Thorndike and Lindeman provide contrasting explanations of how learning takes place, as well as a platform for further discussion, clarification of theory, and focus for research. In a 1963 monograph, Lorge, McClusky, Jensen, and Hallenbeck supply a

synthesis and perspective of the special characteristics of adult learners. Recounting the work of Thorndike, who had been his early mentor, and reflecting upon his own studies of adults, Lorge refutes a number of stereotypes concerning adult intelligence and attitude development. He proposes desirable conditions for learning based upon his connectionist views, emphasizing the importance of rewards and satisfactory adjustment of the learner toward a positive self-concept, and stresses the assessment and effective use of adult experience in learning.

In the same publication, McClusky presents his theory of margin as an explanation of adult development. He claims that to break the stereotype of the biological curve and the notion of "growing up and settling down," a differential psychology for adults is required. McClusky describes adulthood as a period of integration and self-protection. In his view, development includes the ideas of goal seeking and of "becoming something better than the learner now is." The primary factors in the concept are "power" and "load." Power consists of a combination of such interacting factors as physical, social, mental, and economic abilities, together with acquired skills that may contribute to the effective performance of life tasks. Load consists of two types of interacting elements: (1) external load—tasks associated with the requirement of living; and (2) internal load—those life expectancies set by individuals for themselves. McClusky refers to the ratio of 0.50 to 0.80 between "load" and "power" as a desirable margin for a good mental hygiene, leading to positive development.

In a second monograph, Lorge, Jensen, Bradford, and Birnbaum (1965) deal with the same topic. In that publication, Jensen addresses the problem of "developing a theory of adult learning," attempting to set out principles for the practitioner to follow in building a learning theory and proposing content for a theory of adult learning. Jensen highlights four socio-psychological factors to be considered in theoretical content:

1. Structure and dynamics of face-to-face groups.
2. Social processes, structures, and activities of formally organized social systems.
3. Personality organization—the integration of cognitive, emotional, and psychomotor learnings.
4. Community participation—acquiring a psychological model of social life through institutions and ideologies.

Verner (1971), in a discussion of the nature of learning, points out that the act of learning is a "process" rather than a "product."

> ...learning is the process through which an individual acquires the facts, attitudes, or skills that produce changes in behavior. While learning itself cannot actually be observed because it occurs in the mind, it is possible to observe the conditions under which it takes place. (p. 2)

The internal conditions required for learning to which Verner refers include motivation to learn, established attentional set, state of developmental readiness, and conducive learning environment. In outlining stages of the learning sequence, he lists, in order, stimuli, attention, perception, coding, acquisition, and storage.

After highlighting the controversy over learning theory (to which he provides no solution), Kidd (1973) characterizes the adult learner. He sets out eight concepts of adult learning that, in his estimation, have produced useful hypotheses for study. These include changing conditions throughout the learner's lifespan, role changes resulting from work, family, and the like, and involvement in learning as a mutually agreeing member rather than as a dependent student. Kidd also lists the greater differentiation of organs and functions of adults through maturation, greater wealth and different organization of adult experience, and the self-directing nature of the adult. The final two concepts that Kidd lists are the physical, cultural, and emotional meaning of time and attitudes surrounding growing old and accepting death.

In a lengthy treatment of adult development, Knox (1977) may be revealing a bias by devoting no space to learning theory other than reference to Gagne's eight types of learning as an example of a cognitive learning explanation. Knox emphasizes that learning and intellectual performance are modified by such characteristics as physical condition, personal and social adjustment, relevance to the individual, speed, socioeconomic status, social change, personal outlook, and personality characteristics.

One critic of the usefulness of traditional theories of learning for adult education research and theory building, and a consistent proponent of the development of a unique adult learning theory, is Malcolm Knowles (1970). Borrowing from European terminology, Knowles has urged acceptance of "andragogy" as the theory of adult learning. Though this theory lacks precision and detail (perhaps intentionally) as compared with criteria provided by Hill (1964), Knowles (1978) maintains that andragogy possesses the concepts advanced in adult education literature since Lindeman (1926), along with those unique qualities necessary for a comprehensive theory of adult learning. Knowles culls theory from disciplines related to adult education such as psychotherapy, developmental psychology, sociology, social psychology, and education. Capitalizing on studies of learner activity by Houle (1963) and Tough (1971), Knowles contends that a theory of adult learning has matured in the form of andragogy. Some key assumptions that he identifies are:

- A self-concept which moves from dependence toward becoming self-directed.
- Use of experience as a resource for learning.
- Readiness to learn becoming increasingly oriented to developmental tasks of social roles.
- Time perspective changing from delayed application to immediate application.

Contemporary Views of Learning

What seems to emanate from the many views of the way learning occurs is that, because human learning is being conceived by most as more complex than learning among lower organisms, it defies understanding through a single comprehensive theory. The multifaceted nature of human learning that has been recognized through empirical investigation causes theorists increasingly to explain learning "compartmentally." For example, study and discussion focus on conditions of learning (Symposium on the Psychology of Human Learning, 1962), rather than on theory to account for all learning. Though the definition of learning remains the same, the ways in which learning takes place are becoming a more important area of study.

Typically, research has centered on simplified learning situations under laboratory conditions. Attempts have been made (with limited success) to generalize those findings to such complex social environments as the classroom. As Ausubel (1977) points out:

> This practice accounts in a large measure for our lack of knowledge about learning processes, and reflects the fascination which many researchers have for the basic science approach to research in the applied sciences, as well as their failure to recognize the inherent limitations of this approach. (p. 1)

This indictment is even more serious when applied to the "noninstitutional" and informal learning milieu of adult learners.

In summary, the continuing expansion and fragmentation of present thinking concerning traditional learning theory would indicate that there is no comprehensive theory of learning that suffices for the divergent learning experienced by the adult throughout a lifetime. Moreover, adult educators have been unable to articulate an adequate theory unique to adult learning.

Given these observations, it seems best to cull from the literature those theoretical concepts that *have* been substantiated and that give the practitioner some assurance of their utility. Also, we must specify the context or conditions under which the concepts are most applicable. And finally, we must try to identify those concepts that have not yet been explored and demand research attention in the pursuit of more functional adult learning theory.

In seeking a synthesis of theoretical learning concepts, some principles of particular theories are helpful in explaining the learning phenomenon. Understanding these differences should be immensely helpful to the adult educator and the adult learner in choosing the principles and methods to facilitate learning, given the variations in the purposes and circumstances of adult learning.

Some conditions of human learning seem readily represented by operant conditioning. This is probably most obvious in learning that focuses on skill (psychomotor) development and occurs at the basic stages of many learning activities. However, it is important to keep in mind that people respond to reinforcement from both internal and external stimuli (Bandura, 1977), so that "shaping" can be carried out from within or without the individual. The source seems to depend upon the goal direction of the learner and the degree of experience (s)he possesses.

By contrast, learning activities that are more complex and require both conceptualization and abstract reasoning seem to be best explained through cognitive theories. Inductive and deductive reasoning based on the activities of analysis, synthesis, and evaluation in solving problems also may best be described through cognitive or gestalt-field-related theories. Affective learning requires consideration of theory that incorporates more than behavior and cognition. Theory that recognizes the essence of "humanness" is necessary in attempting to satisfactorily explain learning related to attitudes and valuing. These approaches may be more appropriate for the learning that accompanies major transitions or changes in an adult's life, such as those that occur during career changes or other transitions.

3. Principles and Conditions for the Practice of Adult Learning

The following specific principles, derived from the respective traditional theories of learning, seem useful for describing and designing learning under different conditions. *Behaviorism* and *neobehaviorism* seem to suggest the following:

- Regular and immediate reinforcement of desirable behavior results in recurrence of that behavior.
- Adversive stimuli are less effective than reinforcement in producing desired behaviors.
- Undesired behaviors will be extinguished when not reinforced.
- Competitive responses interfere with the learning task and should be eliminated.
- Providing adequate background to a learning task is prerequisite to engaging in the task successfully.
- All components of a learning task should be identified and a variety of practice opportunities employed until each component of the task is learned.
- Models of desired behavior are used by the learner in shaping his/her performance.
- The stimulus for performance originates from within as well as from outside the learner.

Essential principles from *cognitivism* are:

- The life space of an adult learner is more highly differentiated than that of a child.
- The progression of learning activity should parallel the structure of knowledge and reflect cognitive development within the learner.
- Learning results from inductive inquiry—from rearranging, classifying, and coding the observed world through externally provided systems.
- Learning also results from deductive inquiry—through creating one's own structure of the phenomenal world as it is experienced.
- Goals represent end-situations and, as such, modify learning through the concept of closure.

Basic principles that *psychoanalytic theory* presents (Hilgard, 1966, pp. 321-323) are:

- Human development and learning take place through the resolution of ego conflicts throughout life.
- Learning takes place in "working through" conflicts in a repetitive manner from different vantage points.
- Motivation for learning is negatively affected by anxiety in the learner and the consequences of various ego threats (i.e., regression, aggression, repression, and defense mechanisms).
- Gaining insight into one's cognitive processes removes blocks to rationality and promotes understanding.

- In the transfer of learning, symbolism of meaning is more important than verbal equivalences.
- Forgetting is primarily a result of repression.

Principles of "*self theory*" (Rogers, 1969, pp. 157-164) include:

- Human beings have a natural potential for learning.
- Significant learning takes place when the subject matter is perceived by the learner to be relevant to his/her own purposes.
- Learning that involves a change in self organization (in the perception of oneself) is threatening, and tends to be resisted.
- Learning that threatens the "self" is more easily perceived and assimilated when external threats are at a minimum.
- When threat to self is low, experience can be perceived in a differentiated way, and learning is enhanced.
- Learning is facilitated when the learner participates responsibly in the process.
- Self-initiated learning that involves the whole person (feelings as well as intellect) is the most lasting and pervasive.
- The most useful learning is learning the process by which one learns, a continuing openness to experience, and incorporation of the change process into oneself.

The single, relevant principle derived from cybernetic theory is based on the concept of negative feedback to the learner. Cybernetic theory proposes that the learner requires knowledge of the results of his/her performance as feedback in order to improve that performance toward the learning goal (Hill, 1971, pp. 199-202).

The most distinguishing ingredients of adult learning emphasized by adult education theorists are the autonomy of direction in the act of learning and the use of personal experience as a learning resource. If one accepted that the major theories of learning explain certain conditions under which human learning takes place, and that the techniques of these theories are effective under those certain conditions, then the catalyst for effective learning becomes analysis of and by the learner concerning personal factors as they interact with the conditions. This, of course, requires reflecting upon experience by the learner, as well as sensitive diagnosis by the learning facilitator. The learner provides the key to selecting the most effective method. It seems that awareness by the learner of individual orientation, abilities, and style of learning is prerequisite to the application or selection of methods that are effective.

The following are examples of conditions that adults experience while learning. Although they are not intended to be mutually exclusive (i.e., more than one condition may be involved in a given learning episode), the examples are intended to represent a broad spectrum of human learning experiences. They are also intended to suggest that though results of learning experience may be similar, the actual process of learning from one episode to the next or within episodes may be different.

- *Rote Learning*—learning that takes place through the process of repeating an activity many times, usually resulting in the ability to produce or use what is learned with little concentration.

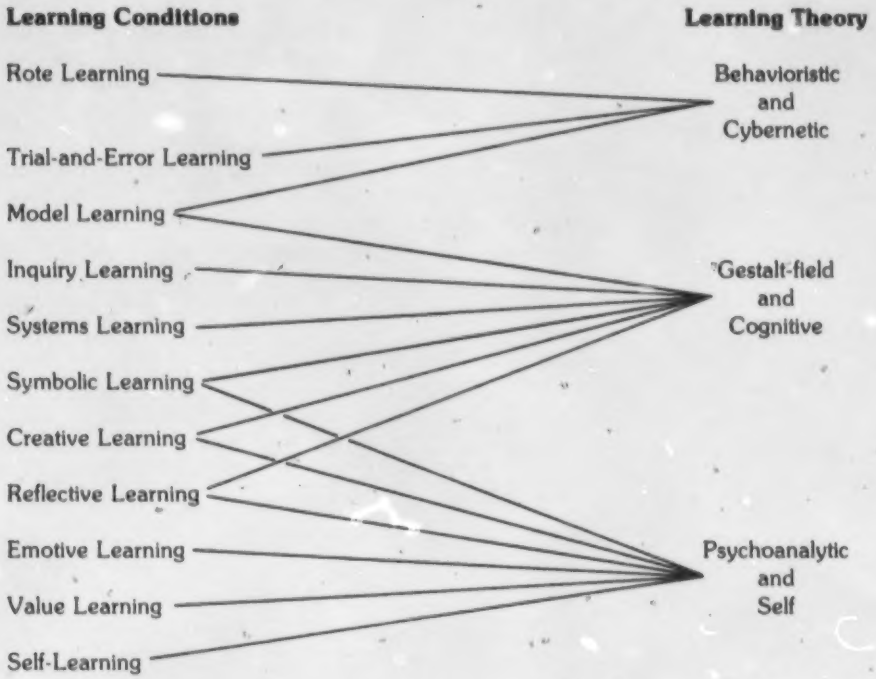
- *Trial-and-Error Learning*—learning by selecting alternative steps or paths toward a learning objective, correcting as one moves to that objective with little or no premeditation in the selection process.
- *Model Learning*—learning by observing and imitating the behavior of others with whom the learner identifies until that behavior occurs in the learner's performance.
- *Inquiry Learning*—learning by finding a solution to a specific problem; in solving the problem, learning takes place.
- *Systems Learning*—learning by accomplishing a specific goal when the steps to achieving that goal are clearly delineated in the mind of the learner or are provided from an external source.
- *Symbolic Learning*—learning by deriving meaning from the translation of information from one form of communication to another; in an attempt to find meaning in certain information, the learner translates to a different mode of communication.
- *Creative Learning*—learning by deriving new meaning through synthesizing and building on previous learnings or products of learning.
- *Reflective Learning*—learning by thoughtful review and analysis, searching for the meaning of what is being learned without a definite goal other than the process of systematically examining ideas and concepts.
- *Emotive Learning*—learning by sensing trauma, stress, pain, and pleasure associated with peak emotional events.
- *Value Learning*—learning by comparing and ordering one's feelings on a larger scale toward an organization of attitudes that may be used in future situations requiring learner response.
- *Self-Learning*—learning by comparing one's personal characteristics and "ideal" characteristics as perceived by the learner with those characteristics identified by others with whom the learner comes in contact—discovering "self."

Figure 1 shows the proposed relationship of the major theories about learning and the variety of conditions under which learning may occur. Rote and trial-and-error learning, for example, seem to rely on the principles of behaviorism and cybernetic approaches, with their emphasis on developing an automatic response to repeated stimuli and the rapid correction of the response through direct feedback. Systems and symbolic learning, on the other hand, are more closely related to the principles of gestalt-field and cognitive theories. Through these the learner understands the essential relationships between factors in his/her environment and can make associations based on an understanding of these rather than past experience.

The application of what is being suggested might best be illustrated through example. When one is learning a basic skill in the early stages of learning mathematics or becoming familiar with the keyboard of a typewriter as an introduction to business skills, a method of trial and error with positive reinforcement for correct responses (internally or externally administered) may be an effective way of learning. In contrast, however, when the learner is attempting to solve for unknowns in a complex algebraic equation or to compose an effective business letter, a method based more in cognitive-field theory, where the relationship of technique and purpose are blended, might produce better results. Likewise, if an adult basic education teacher is trying to help students internalize the concept of "nationalism" in a study

FIGURE 1

RELATIONSHIP OF LEARNING THEORIES TO CONDITIONS OF LEARNING EXPERIENCED BY ADULTS



of social issues, (s)he might appeal to participants' feelings about their culture and what it means to them to be a citizen (value learning), rather than simply encourage the rote learning of the United States Constitution.

Another important aspect surrounding conditions of adult learning seems to be the interaction between the learner's personal style and orientation and the method and intended outcomes of learning. The way the learner perceives the method and the intended result of learning seems to be unique to individual learners, particularly adults. For example, the goal-oriented individual may perceive a particular method spelled out by the provider simply as a vehicle for accomplishing a learning task, whereas the learner who is learning for the sake of learning may view the same approach as an obstacle to overcome, if (s)he is to learn what (s)he came to learn.

Yet another factor affecting the conditions of adult learning is the personal style of the learner. For example, a field-dependent learner as classified by Witken may be more responsive to a phenomenal approach to learning than to a cognitive approach, whereas the field-independent learner may find a method based on cognitive theory very useful because of his/her facility to disengage from the psychological field.

According to Torbert (1972), a theoretical model that attempts to incorporate the essence of behavioral, cognitive, and phenomenal theories should consider learning from at least four levels of experience: (1) the world outside; (2) one's own behavior; (3) one's internal cognitive-emotional-sensory structure; and (4) consciousness. In answering the question of how one learns from experience, Torbert explains:

> Experiential learning involves becoming aware of the qualities, patterns, and consequences of one's own experience as one experiences it. How basic such learning is can be indicated by the fact that to be out of contact with, and unaware of, one's immediate experiencing has been conceptualized as psychological illness. (pp. 7-8)

With this in mind, adult learning might be viewed as a process, moving on a continuum from some degree of psychological dependence toward independence. The pattern would also describe movement from external toward internal locus of control by the learner. Finally, it would include movement from learning based on representations of world experience toward personal life experience as the source for learning content.

In this particular concept of adult learning, theories of behaviorism, cognitivism, and phenomenology would be incorporated to explain various conditions of learning from which learning and teaching methods might be selected. However, the important element in the model is the learner, who acts to analyze conditions of learning in relation to individual characteristics and make choices that will assist in moving from left to right on the continua.

Adult Learning Continua

Learner Selection

Psychological Dependence	(Learning Direction)	Psychological Independence
External Locus of Control	(Learning Responsibility)	Internal Locus of Control
Representations of World Experience	(Learning Content)	Life Experience

Finally, in direct response to the question originally advanced, the ineffectiveness of programs for adults may have more to do with lack of understanding about the various conditions of learning and the integral role individuals play in the learning process, than misunderstanding or misuse of comprehensive theories of learning. Understanding the match of individual characteristics (orientation, abilities, style, etc.) with learning conditions (psychomotor performance, concept attainment, or value clarification) seems vital. This awareness is necessary not only for the provider of programs, but obviously for the learner her/himself. It appears unlikely that an adequate theory to guide practice will be developed for some time. Given this situation, the study of adult learning conditions and patterns of adult learning activity seem most appropriate to develop effective methods of facilitating learning by the adult.

4. Directions for Further Research

A recent publication by the Advisory Panel on Research Needs in Lifelong Learning During Adulthood (1978) presented a framework for organizing research (figure 2). As a guide for further study, this framework is used to focus on specific research questions that address important areas in adult learning. Future directions from findings in the literature review are highlighted through reference to specific cells in the matrix that seem to represent important research areas. Pertinent research questions addressing the intention of the respective cells are isolated for example and possible further discussion. Finally, specific research questions of highest priority emanating from those isolated are identified as suggested areas for immediate attention.

Given our focus on adult learning, the basic descriptive questions provided by the Advisory Panel pertaining to the learner are certainly appropriate and pertinent, with the possible consideration of giving greater emphasis to the first six questions.

•Basic Descriptive Data Needs: Learners

L-1 By whom (individuals and groups with what characteristics and living in what settings) are learning opportunities sought and/or undertaken?

L-2 For what purpose do learners seek and/or engage in learning opportunities?

L-3 What is the content of learning opportunities?

L-4 By what methods are learning opportunities planned and carried out by learners?

L-5 What learner resources (human, physical, financial, and time) enable and facilitate learning opportunities?

L-6 What support functions (e.g., planning, acquiring information, testing and placement, management, evaluation, design, and production of learning resources) do learners need and/or provide for themselves when engaging in learning opportunities?

Questions pertaining directly to providers and the societal context have been reviewed and screened in relation to additional queries that learners may have.

•Selected Basic Descriptive Data Needs: Providers

P-1 By whom (individuals and/or institutions with what characteristics) are learning opportunities provided and/or facilitated?

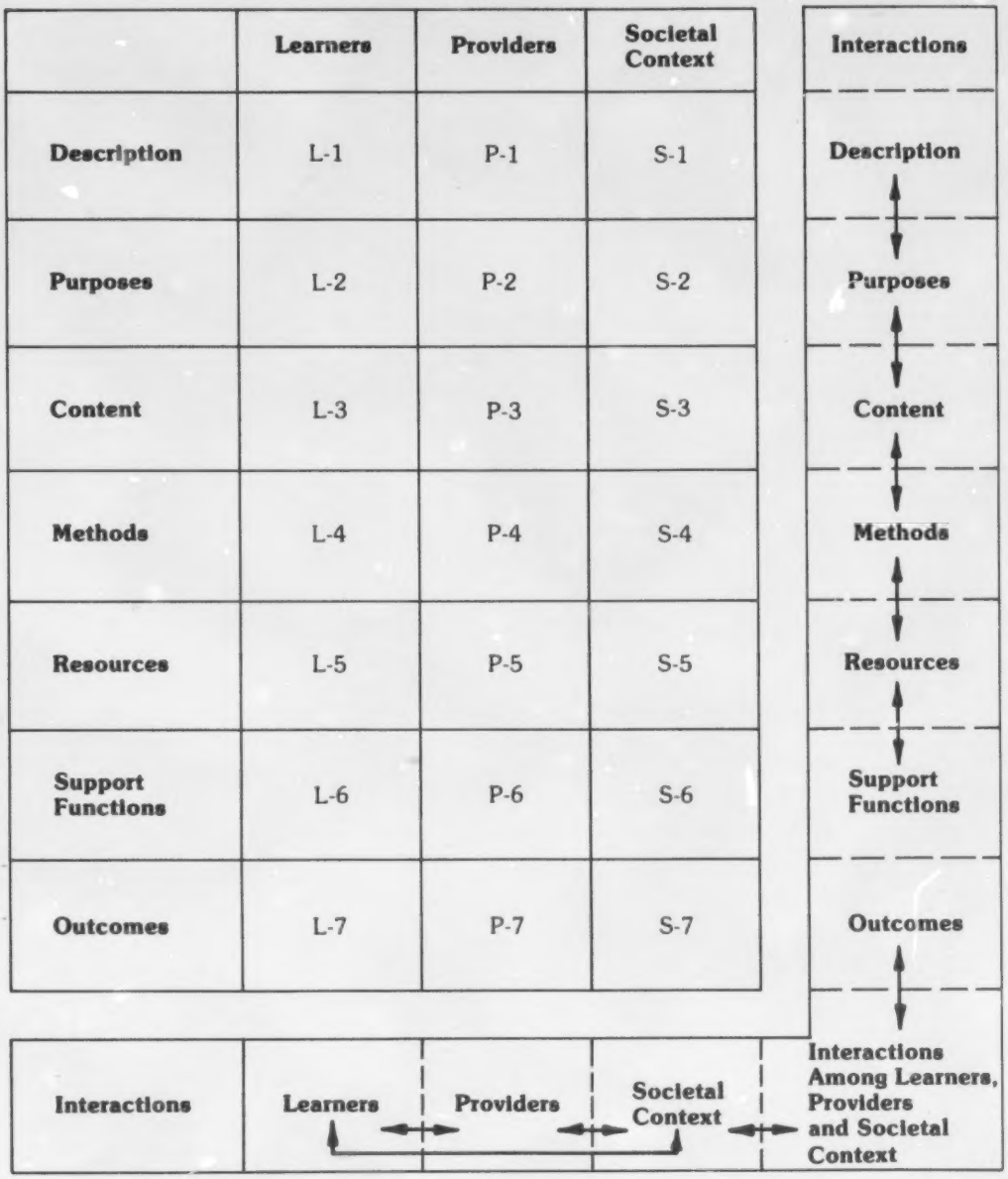
P-3 What is the content of learning opportunities offered and/or facilitated by providers?

P-5 What provider resources (human, physical, financial, and time) enable and/or facilitate learning opportunities?

P-6 What support functions (e.g., policysetting and governance, information exchange, counseling and guidance, testing and placement, program administration, instructional planning, design and production of learning materials, research, evaluation, staff training) are offered by providers to enable and/or facilitate learning opportunities?

FIGURE 2

FRAMEWORK FOR ORGANIZING RESEARCH ON LIFELONG LEARNING



•Selected Basic Descriptive Data Needs: Societal Context

S-1 In what societal context(s) does lifelong learning occur?

S-3 In what ways does the societal context influence the content of learning opportunities?

S-4 By what methods does society encourage and support both learners and providers in the lifelong learning process?

S-6 What support functions (e.g., policysetting and governance, program planning, design and production of learning resources, information exchange) are offered to learners and providers by the societal context?

Figure 3 graphically represents this writer's estimation of the interaction that provides a better understanding of adult learning and eventually leads to improved adult education practice. Areas of research that deserve attention are those that relate specifically to the better understanding of adult learning and the clearer delineation of useful theory. These include research pertaining to learning orientations, learning styles, and experiential learning. Several important research questions have already been asked by Houle, Tough, Boshier (1973), and others in the area of orientation.

Additionally, research investigating learning style might pursue such questions as:

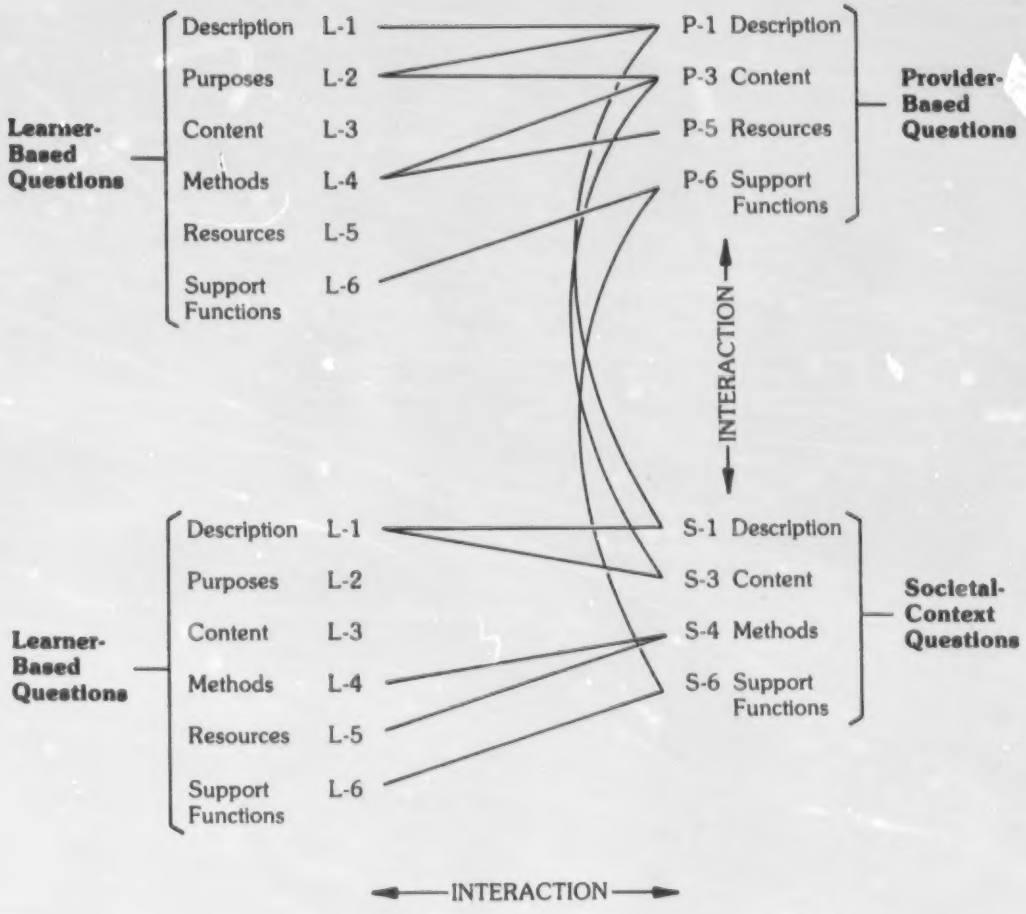
- How do individuals plan for and progress through given learning activities?
- What strategies do learners find successful under particular learning conditions?
- How do learners use dominant cognitive styles in the pursuit of learning?
- What is the relationship between certain adult education types (e.g., small group, independent, and programmed instruction) and use of a dominant cognitive style on the part of the learner?
- What is the relationship of need for self-direction on the part of the learner and success in particular learning environments?

Investigation into experiential learning might answer the general question, "What life experiences provide impetus and are used to guide learning?" More specific research questions might include:

- To what degree do adult learners rely on internal versus external authority in their acceptance and pursuit of learning content?
- What uses do learners make of purposeful, reflective thinking as a learning tool?
- How do learners use social learning models as instruments for learning?
- How do individuals perceive particular societal roles and learn the necessary skills in assuming those roles, i.e., work, family, community?

FIGURE 3

ADULT LEARNING RESEARCH QUESTIONS AND INTERACTIONS OF PRIORITY



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